

TARIFF MODEL

FOR

SMALL WATER UTILITIES

Regulated by the
NATIONAL WATER RESOURCES BOARD

USER'S MANUAL

Revised September 2008

ABBREVIATIONS AND ACRONYMS

CAPEX	Capital Expenditures
CPC	Certificate of Public Convenience
Cu. m., m ³	Cubic Meters
EPA	Extraordinary Price Adjustments
EV	Equivalent Volume
KPI	Key Performance Indicators
lps	Liters per Second
MB	Megabytes
MWCI	Manila Water Company, Inc.
MWSI	Maynilad Water Services, Inc
NRW	Non-Revenue Water
NSO	National Statistics Office
NWRB	National Water Resources Board
OPEX	Operating Expenses
PEISER	Property and Equipment in Service Entitled to Return
PIP	Performance Improvement Plan
RAM	Random Access Memory
ROI	Return on Investments
VAT	Value-Added Tax

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1 What is the NWRB Tariff Model?

The NWRB Tariff Model is a spreadsheet-based financial management model specially designed for private water utilities regulated by the National Water Resources Board (NWRB)¹. It helps water utilities in setting their water tariff to charge to customers. The Tariff Model calculates the required revenue requirements using the modified return on investments (ROI) methodology. It generates reports required to be submitted to NWRB for a request for tariff approval, such as the proposed tariff structure, Income Statement and Balance Sheet, among others. The model is also a tool for NWRB to regulate water utilities applying for the approval of their water rates.

The model is also a financial projection model that can show how the water utility will perform in the next five years, based on assumptions that were inputted into the model. It is a useful tool in assessing the performance of the water utility and it can be used for what-if scenarios that would be very helpful in making decisions.

The objective of this User's Manual is to help water utilities use the Tariff Model to come up with proposed tariff rates for approval by NWRB. It does not intend, and should not be considered, as a text for specific rate setting methodology.

2 Software and Hardware Requirements

The Tariff Model is an Excel file composed of several sheets that are linked together. It was developed in *Microsoft Excel (2002)*. The model requires a personal computer (PC) which should have the following hardware:

- Floppy drive that can read the 3.5" high-density (1.4 MB) diskette or
- CD-ROM drive
- Hard drive
- Color monitor
- RAM of around 3 MB to open the files, in addition to the RAM for the system requirements and software program

¹ This Tariff Model was developed by IDP Consult, Inc. in 2005 under ADB TA 6123-REG: Pilot and Demonstration Activity – Rationalizing Tariffs for Private Water Utilities under the National Water Resources Board. This September 2008 version of the model reflects improvements after being tested in the NWRB-regulated water utilities participating in the Small Water Utilities Improvement and Financing Project (SWIF) of the Water and Sanitation Program of the World Bank.

3 How to Use the Model

3.1 Organization of the Model

The Tariff Model is an Excel workbook where related activities are grouped together in sheets. The sheets can be classified into the following:

Input sheets where data are supposed to be entered, such as the historical balance sheet and income statement figures and basic assumptions.

Computation sheets which contain mostly formulas based on the data from the input sheets or some specific data found in the computation sheets, such as the projection of operating expenses and loan repayment schedule.

Output sheets which contain reports resulting from the input and computation sheets, such as the projected balance sheet, income statement and the tariff proposal

Inputs are done only on the yellow-shaded cells. The other cells are not supposed to be modified so that linkages in formulas will not be disconnected. This Tariff Model is also used for regulation purposes by NWRB. For these reasons, the non-yellow cells have been protected.

Figure 3-1 is a graphic presentation of these data and sheets that comprise the Tariff Model.

Figure 3-1 Map of the Tariff Model

MODULE	INPUT SHEETS	COMPUTATION SHEETS	OUTPUT SHEETS
Performance Forecasting		Supply and Demand	Highlights
	Opening	OPEX	Reports
	Assumptions	Borrowings	
		Movements	
		Coop	
Proposed Investments	CPX Inv Constant	CPX Inv Current	
	CPX Inv No Return Constant	CPX Inv No Return Current	
	PIP	FIRR Details	FIRR
Return on Investments		CPX ROI Inv	
	CPX Depn Table	CPX ROI Cum. Assets	
	CPX Begin	CPX ROI Depn	
		CPX ROI Acc Depn	
		CPX ROI NBV	
Tariff		Consumption	Tariff Proposal
		Tariff computation	Evaluation
			Disallowances

3.2 Initial Request for Tariff Approval

This section applies to a water utility requesting for approval of its water tariffs from NWRB for the first time. The documents required are enumerated in Section 4.1 below.

The following are the procedures in coming up with the proposed water tariffs to be submitted for approval.

A. Input all required data in the yellow cells.

1. Go to the Opening sheet and input the audited income statement and balance sheet accounts for the last two years in the yellow cells (see also discussions in Section 6.1).
2. Go to the Assumptions sheet and input the assumptions and other data required for the projections in the yellow cells (see also discussions in Section 6.2).
3. Go to the other sheets and fill up the applicable yellow cells for the following data:
 - a. Highlights sheet (see Section 5.4)
 - Installed production capacity in lps
 - % NRW
 - New connections
 - Number of employees
 - Collection period, in days
 - b. Performance Improvement Plan (PIP) sheet (see Section 6.3)
 - Capital investments by year of disbursement
 - Operating expenses by year of disbursement
 - c. Supply & Demand sheet (see Section 7.1)
 - New connection fees - rate increase
 - Other operating revenues - % of total operating revenues
 - d. OPEX sheet (see Section 7.2)
 - Management fees
 - e. Borrowings sheet (see Section 7.3)
 - Additions to outstanding loans
 - Amortization of outstanding loans
 - Interest expense of outstanding loans
 - Terms of new loan
 - f. Movements (see Section 7.4)
 - Fixed assets excluding land – disposal/retirement of assets
 - Other current liabilities – additions, payments
 - Other liabilities – increase / decrease
 - Capital reserves – increase / decrease
 - g. Coop Sheet (see Section – 7.5)
 - Percent of new connections becoming members of the Cooperative
 - Par value of each share
 - Percentage of initial payment
 - Amount of monthly payment
 - Payment period, in number of months
 - Number of members with fully paid shares
 - Amount of monthly capital build-up paid by members
 - h. Consumption Sheet (see Section 7.6)
 - Number of connections

- Average monthly consumption
 - Increment factor
 - i. Tariff Computation (see Section 7.7)
 - Increment factor for Public Tap
 - j. CPX Begin Table (see Section 8.1.2)
 - Acquisition date of assets
 - Acquisition cost of assets
 - Funding source of the asset
 - Classification of asset for purposes of identifying Property and Equipment Entitled to Return (PEER)
 - k. CAPEX Inv Constant (see Section 8.1.3)
 - Existing assets acquired during the last 5 years
 - Capital investments during the next five years
 - l. CAPEX Inv No Return (see Section 8.1.4)
 - Existing assets not entitled to return
 - Capital investments during the next five years not entitled to return
- B. Evaluate results.
1. Go to the Evaluation sheet. Set the required ROI in the line “Maximum Allowable Rate of Return” under Year 1. NWRB allows a maximum ROI of 12%. The water utility may set an ROI lower than 12% if this is what it prefers (see also discussions in Section 5.3).
 2. Go to the Highlights sheet (see also discussions in Section 5.4).
 - a. The line “Average Tariff/m³ to yield 12% ROI” shows the maximum tariff that may be implemented at 12% ROI for each of the five years, and their average under the column of Average, Years 1-5.
 - b. If the water utility wants to use these rates, place the average for years 1-5 in the yellow cell in the next line, “Average Tariff/m³ for implementation”. The water utility may opt not to use this maximum average tariff for its own reasons, and input its desired average tariff to be implemented in the yellow cell instead.
 - c. Check the line “Additional Equity Needed”.

This line represents funds shortage. It is assumed that whatever shortage appears in funding requirements will be covered by additional equity investments. This line should have a “0” balance, unless the water utility intentionally wants to add equity for the funds shortage.

The water utility has several options in eliminating the financing gap, as discussed below. All the options below should be based on the water utility’s Business Plan for the next five years, or the Business Plan should be revised if the results in the Tariff Model show that the Business Plan is not giving satisfactory results.

Fine-tune Assumptions

The water utility may return to the assumptions it initially made. Significant assumptions that have a major impact on the operations of a water utility have been grouped in the upper portion of the **Highlights** sheet, so that the user does need to go back and forth among the different sheets. These are :

- % Non-revenue water
- Installed production capacity
- New connections to be added every year
- Number of employees
- Collection period

While changing the above variables, check that there is no water shortage shown in the line “Water Surplus/Shortage”, and that the percent population served does not exceed 100% as shown in the line “% Population Served”. Check also that the water utility is satisfied with the resulting personnel ratio, net income ratio, operating ratio and average operating cost per cubic meter sold.

Modify Capital Investments

The water utility may modify its capital investments by adjusting the timing to a year that can afford the costs. It may also modify the cost of the capital investments.

Borrowings and Donations

If the water utility does not intend to add equity investments, it may obtain funds in the form of additional capital, notes or loans payable, and donations from the following sources:

- Affiliated company
- Shareholders
- Banks and other third parties

For water cooperatives, capital contributions of members may also be tapped as fund sources for investments.

Do iterations of the above until the water utility is satisfied with the results as shown in the Highlights sheet. To see the overall impact on the utility performance, review the Evaluation sheet and the reports in the Reports sheet.

- d. Copy the value under the average for years 1-5 to the yellow cell on Year 1 in the line “average tariff/m³ for implementation” to update the ROI calculation. The resulting average annual return on investments should not exceed 12%. This is done as follows:

- Copy the value by using these commands (do not just copy the contents of the cell, as this will have a different result) -
Click the cell to be copied.
Edit / copy

Click the location where the cell will be copied.

Edit / paste special / values

- Press F4 at least five times (to repeat the last command, which was to copy the value of a cell), or until Excel has completed recalculating.
3. Go to the Tariff Computation sheet to fine-tune the proposed tariff (see also discussions in Section 7.6). Adjust the increment factor until:
 - The minimum charge affordability is met;
 - The gap between the required revenue requirements and the revenues generated by the tariff is down to a minimum; and
 - The water utility is satisfied with the resulting water rates to be proposed. This can be reviewed in the Tariff Proposal sheet.

3.3 Subsequent Request for Tariff Approval

This section applies to a water utility which is requesting for a subsequent approval of its water tariffs from NWRB. The documents required are enumerated in Section 4.2 below.

The procedures are similar to those for an initial request for tariff approval enumerated in Section 3.2 above. The following are the procedures.

A. Input all required data.

1. Go to the Opening sheet and input the audited income statement and balance sheet accounts for the last five years (see also discussions in Section 6.1).
2. Go to CPX Begin sheet. Input the details of the property and equipment in service for the end of Year -4 (the beginning year of the old tariff period). See Section 8.1.2 for more detailed discussion on how to do this, and Table 8-1 for the contents of this sheet.
3. Follow the same procedures as in Section 3.2.A.

B. Evaluate results.

Procedures for evaluating results for the next five years are the same as those in Section 3.2.B, except that the Depreciation Reserve Fund is now an available source of funding.

The Depreciation Reserve Fund is required to be maintained by all CPC grantees. The amount of depreciation expense is supposed to be deposited to this fund. This fund may only be used for capital investments, rehabilitation, repairs and maintenance of existing assets. This fund becomes an additional source of funds to the water utility which was not yet available to an initial CPC applicant.

The following are the additional procedures for evaluating performance during the past five years.

1. Review past performance.

For a subsequent tariff application, the water utility's performance in the last five years is evaluated against the approved targets. Variances may either be allowed or disallowed.

a. Capital Expenditures

It may happen that capital expenditures were not implemented according to schedule which may affect the revenues generated. In such a case, the actual implementation should be inputted in the CPX Inv Constant sheet by inputting the actual amount invested under the corresponding year. Variances in capital expenditures affect the computation of the net book value of property and equipment that will be the basis of the ROI.

b. Operating Expense

Operating expenses are audited to check that they were incurred prudently and efficiently. Disallowed excessive and unauthorized expenses are inputted in the Evaluation Sheet for the past years, in the section that computes the working capital. They affect the working capital and operating expenses that form part of the revenue requirements.

The Tariff Model has special computations for the evaluation of power and chemical costs arising from the variance in the unit costs of their target and actual costs. These variances are computed in the Disallowances sheet. See detailed discussion on this in Section 7.7.

c. Non-Revenue Water

When a water utility does not meet the approved target NRW percentage, it is penalized or rewarded, but after being given a flexibility of $\pm 10\%$ of the approved target percentage. The adjustment comes in the form of its effect on power and chemical costs incurred or saved on the extra or lesser volume of water it needed to produce to be able to meet its production requirements. These are computed in the Disallowances sheet. See details on how this is done in the discussion of the Disallowances sheet, Section 7.7.

The penalty on the above becomes an adjustment to operating expenses and working capital for the past years.

d. Tariff Implementation

The actual tariff implemented may have been in accordance with the approved average tariff. But due to variances in the implementation against the projections, allowances or disallowances may occur. One example is capital investments that were not implemented on time, resulting to number of connections not met, and consequently water revenues not generated as projected. These allowances/disallowances are discussed in detail in the discussion of the Disallowances sheet, Section 7.7.

Variances related to the adjusted tariff are brought forward to the next five-year period as an adjustment to revenue requirements for that period.

2. Compute adjusted revenue requirements.
 - a. For the past five-year period, the revenue requirements become adjusted after reflecting the allowances/disallowances discussed in (1) above.
 - b. For the next five years, the revenue requirements are adjusted by the tariff implementation adjustments discussed in (1) (d) above.
 - c. Do iterations of refining the results in the Highlights sheet, as discussed in Section 3.2.B above, until the water utility is satisfied with the results. For the bigger picture, the Evaluation sheet and the reports in the Reports sheet may also be reviewed.
 - d. In the Highlights sheet, copy the amount under the average for years 1-5 to the yellow cell under Year 1 in the line “average tariff/m³ for implementation” to update the ROI calculation. The resulting average annual return on investments may exceed 12% due to the adjustments from the previous five-year period. This average tariff for implementation will now be the basis for the water rates proposal.
3. Fine-tune the tariff proposal by adjusting the increment factor in the Tariff Computation sheet (see also discussions in Section 7.6).

Adjust the increment factor until:

- The minimum charge affordability is met; and
- The water utility is satisfied with the resulting water rates to be proposed. This can be viewed in the Tariff Proposal sheet.

See Table 3-1 for the full display of the Evaluation sheet including the review of the past five-year period.

3.4 Extraordinary Price Adjustments

Extraordinary price adjustments (EPA) are allowed within the five-year validity of water tariffs should there be unforeseen events that occurred significantly affecting the operations of the water utility. An example that warrants this kind of adjustment is a drastic increase in power costs. In such cases, the existing five-year validity period is retained. This is done in the Tariff Model as follows:

- a. Change the projected data with actual data for years that have already elapsed in the five-year validity of the existing tariffs.
- b. Update assumptions affected for the remaining projected years in the Assumptions sheet.

Evaluation of the ROI and tariff remains the same as in Section 3.2.

Table 3-1 Return on Investments Evaluation - Past and Projected Years

	2004 Year-4	2005 Year-3	2006 Year-2	2007 Year-1	2008 Year 0	Average	2009 Year 1	2010 Year 2	2011 Year 3	2012 Year 4	2013 Year 5	Total Years 1-5
Property & Equipment, beg	-	5,394,337	5,452,390	8,652,619	9,228,293		10,967,147	16,418,930	20,791,422	26,279,084	30,804,091	
New Investments	5,394,337	58,053	3,200,229	575,674	1,738,855		5,451,782	4,372,492	5,487,662	4,525,007	2,081,047	
Property and Equipment in Service Entitled to	5,394,337	5,452,390	8,652,619	9,228,293	10,967,147		16,418,930	20,791,422	26,279,084	30,804,091	32,885,138	
Less: Accumulated Depreciation	2,076,884	2,252,585	2,445,691	2,780,455	3,191,243		(3,951,038)	(5,511,372)	(7,572,726)	(10,138,125)	(13,104,019)	
Net Book Value	7,471,221	7,704,975	11,098,310	12,008,748	14,158,391		12,467,891	15,280,050	18,706,358	20,665,966	19,781,119	
Add: Working Capital												
Operating Expenses excluding depreciation	1,925,799	2,102,719	2,129,911	2,917,963	2,769,453		3,516,022	4,385,612	5,342,902	6,492,997	7,500,919	
Allowed (Disallowed) Expenses												
Personnel and Management Fees												
Power	#DIV/0!	(9,616)	(14,720)	(18,765)	(16,935)							
Chemicals	#DIV/0!	-	(15,975)	(22,735)	(18,653)							
Repairs and Maintenance												
Bulk Water Purchases												
Bad Debts												
General and Administrative Expenses	-	-	-	-	-							
NRW-related Adjustment	#DIV/0!	-	-	-	-							
Adjusted Operating Expenses	#DIV/0!	2,093,103	2,099,216	2,876,464	2,733,865		3,516,022	4,385,612	5,342,902	6,492,997	7,500,919	
2-Months Average Cash Operating Expenses	#DIV/0!	348,850	349,869	479,411	455,644		586,004	730,935	890,484	1,082,166	1,250,153	
Total Invested Capital Entitled to Return	-	8,053,826	11,448,179	12,488,159	14,614,035	9,320,840	13,053,895	16,010,986	19,596,841	21,748,132	21,031,273	18,288,225
Maximum Allowable Rate of Return	12.0%	12.0%	12.0%	12.0%	12.0%		12.00%	12.00%	12.00%	12.00%	12.00%	
Maximum Allowable Net Income	-	966,459	1,373,781	1,498,579	1,753,684		1,566,467	1,921,318	2,351,621	2,609,776	2,523,753	
Maximum Allowable Net Income	-	966,459	1,373,781	1,498,579	1,753,684		1,566,467	1,921,318	2,351,621	2,609,776	2,523,753	
Operating Expenses	#DIV/0!	2,093,103	2,099,216	2,876,464	2,733,865		3,516,022	4,385,612	5,342,902	6,492,997	7,500,919	
Depreciation	-	175,701	193,106	334,764	410,788		759,795	1,565,426	2,086,354	2,565,399	2,976,600	
Revenue Requirement	-	3,235,263	3,666,104	4,709,807	4,898,337	16,509,511	5,842,285	7,872,356	9,780,877	11,668,172	13,001,272	48,164,962
Volume Sold, m3	-	494,254	515,385	531,645	503,184	2,044,468	575,256	728,640	835,824	989,472	1,118,568	4,247,760
Required Average Tariff (Php/cum)	#DIV/0!	6.55	7.11	8.86	9.73	8.08	8.09	7.90	9.20	8.97	9.17	8.76
Tariff Adjustment												
Non-Water Revenues							1,282,922	2,342,087	1,990,743	2,726,055	2,621,386	10,963,194
Total Operating Revenues							6,320,999	8,723,497	9,310,868	11,391,824	12,417,775	48,164,962
% Non-Water Revenues / Total Oper. Rev.							20%	27%	21%	24%	21%	23%
Adjusted Revenue Requirement							5,842,285	7,872,356	9,780,877	11,668,172	13,001,272	48,164,962
Adjusted Required Average Tariff							8.09	7.90	9.20	8.97	9.17	8.76
Average Return on Investments												
Net Income (Loss) Before Tax, net	147,843	427,549	1,276,288	510,310	381,346	548,667	2,045,182	2,772,459	1,881,612	2,333,428	1,940,255	2,194,587
Average Water Revenues/m3 Sold	-	-	-	7.08	7.08	7.88	8.76	8.76	8.76	8.76	8.76	8.76
Rate of Return	#DIV/0!	5.3%	11.1%	4.1%	2.6%	5.9%	15.7%	17.3%	9.6%	10.7%	9.2%	12.0%

4 Documents Needed

At the time of filing of the application for a tariff approval or tariff increase approval, two sets of documents are required, as enumerated below. The use of these documents will be specifically mentioned in the sections for the sheets where they will need to be inputted.

4.1 Application for Initial CPC and Approval of Tariff

The following documents, also required to be submitted for an initial application for a CPC and approval of tariff, would be needed by the Tariff Model:

1. Latest audited financial statements for the last two years
2. Actual Balance Sheet showing balance sheet items for water operations for the last two years². If a complete Balance Sheet cannot be prepared, the following accounts pertaining to the water operations for the last two years must be provided. The net effect of these accounts will be assumed to be the capital for the water operations.
 - a. Accounts Receivable – Water Supply
 - b. Materials Inventory
 - c. Property and Equipment In Service, at cost
 - d. Accumulated Depreciation
 - e. Customers' Deposits
3. Itemized list of assets entitled to return as of the end of the last historical year. This should support the Property and Equipment in Service referred to in Item 2 (c) above.
4. Actual Income Statement showing income statement items for water operations for the last two years³
5. Business Plan for the next five years
6. Projected financial statements for water operations for five years, with the following:
 - a. Income Statement
 - b. Balance Sheet
 - c. Assumptions
7. Itemized list of new investments for the next five years
8. Proposed schedule of water rates
9. Levels of service agreed with consumers commensurate with proposed rates

4.2 Application for Renewal of CPC and Approval of Tariff

The CPC has to be renewed every five years, at the same time that subsequent tariffs have to be reviewed. At this time, the following requirements for submission will be used by the Tariff Model:

1. Annual Reports for the last five years
2. Latest audited financial statements for the last five years
3. Actual Balance Sheet showing balance sheet items for water operations for the last five years⁴. If a complete Balance Sheet cannot be prepared, the following accounts pertaining to the water operations for the last five years must be provided. The net effect of these accounts will be assumed to be the capital for the water operations.
 - a. Accounts Receivable – Water Supply
 - b. Materials Inventory

² These reports are required for water utilities that have business ventures other than its water operations.

³ Ibid.

⁴ Ibid.

- c. Property and Equipment In Service, at cost
- d. Accumulated Depreciation
- e. Customers' Deposits
4. Itemized list of assets entitled to return as of the end of the last historical year. This should support the Property and Equipment in Service referred to in Item 3 (c) above.
5. Actual Income Statement showing income statement items for water operations for the last five years ⁵
6. Business Plan for the next five years
7. Projected financial statements for water operations for five years, with the following:
 - a. Income Statement
 - b. Balance Sheet
 - c. Assumptions
8. Itemized list of new investments for the next five years
9. Proposed schedule of water rates
10. Levels of Service agreed with consumers commensurate with proposed rates

5 Output Sheets

The Tariff Model output sheets produce reports needed for the analysis of the results of the projections and the resulting tariff. They contain almost no inputs, and generate the reports based on data entered in yellow cells in the input sheets

5.1 Reports Sheet

This sheet contains the following reports. They are ready to be printed to support the water utility's request for tariff approval.

1 Key Performance Indicators

Levels of Service

The first part of this section of the Reports sheet is about Levels of Service. The levels of service discussed and agreed with customers in general include non-revenue water, service coverage, water pressure, continuity of service, water quality standards, and emergency provisions of water supply. It may also include response to complaints and requests for new connections and repair of disruptive mains. These agreements are converted into the technical data below and are considered by the Tariff Model in determining the proposed water rates. Table 5-1 shows what this part contains. Other year-columns have been hidden to have a readable size of the table.

Table 5-1 Levels of Service

	2007 Actual	2008 Year 0	2009 Year 1	2010 Year 2	2011 Year 3	2012 Year 4	2013 Year 5
LEVELS OF SERVICE							
Production Capacity, m3/year	1,040,688	596,030	753,710	753,710	952,387	952,387	952,387
% Non-Revenue Water	12%	16%	15%	14%	12%	12%	12%
Population Served	13,629	14,170	14,773	17,363	22,017	24,757	25,194
% Population Served	38%	101%	105%	122%	152%	169%	170%
Number of Connections	2,621	2,725	2,841	3,339	4,234	4,761	4,845
Ave. Consumption/Conn./Month (m3)	14	12	14	18	20	22	22
Average Tariff (P/m3 sold)	7.02	7.02	8.45	8.45	8.45	8.45	8.45

⁵ Ibid.

Key Performance Indicators

The second part of this sheet shows key performance indicators based on past and forecast performance of the water utility. These KPIs will be used by NWRB to develop benchmarks of performance of its clients. Table 5-2 shows the contents of this part.

Table 5-2 Key Performance Indicators

	2007 Actual	2008 Year 0	2009 Year 1	2010 Year 2	2011 Year 3	2012 Year 4	2013 Year 5
KEY PERFORMANCE INDICATORS							
Average Monthly Water Bill (P/connection)	91.50	83.19	118.67	152.15	167.36	182.58	182.58
Net Income Ratio	10%	-6%	17%	28%	31%	30%	20%
Rate of Return on Investments	-8%	6%	12%	14%	14%	10%	12%
Rate of Return on Revenues	10%	-6%	17%	28%	31%	30%	20%
Operating Ratio	79%	94%	67%	51%	43%	46%	55%
Average Operating Costs, P/m3	6.90	8.08	6.83	5.62	4.93	4.85	5.48
Collection Period, Days	185	120	90	60	30	30	30
Current Ratio	1.57	7.09	2.66	1.33	1.26	1.22	1.38
Personnel Ratio	238	248	219	223	249	251	231
Employees/1000 Connections	4.2	4.0	4.6	4.5	4.0	4.0	4.3
Average Annual Salary	177,506	186,382	195,701	205,486	215,760	226,548	237,875

2 Income Statement

The Income Statement reflects the actual and forecast result of operations of the water utility based on inputs made in various other sheets. It only contains water operations regulated by NWRB. Table 5-3 shows how this appears in the Tariff Model.

Table 5-3 Income Statement

	2007 Actual	2008 Year 0	2009 Year 1	2010 Year 2	2011 Year 3	2012 Year 4	2013 Year 5
Operating Revenues							
Water Revenues	2,877,983	2,720,326	4,045,827	6,096,181	8,503,250	10,430,878	10,614,913
New Connection Fees	97,378	156,000	184,440	831,411	1,553,971	951,620	157,749
Other Operating Revenues	587,279	448,429	666,929	1,004,917	1,401,708	1,719,465	1,749,802
Total Operating Revenues	3,562,640	3,324,754	4,897,196	7,932,509	11,458,929	13,101,963	12,522,464
Operating Expenses							
Personnel and Management Fees	1,952,568	2,050,197	2,544,108	3,082,285	3,667,919	4,304,410	4,995,381
Power	27,160	26,894	34,782	54,390	77,108	98,371	104,111
Chemicals	34,692	34,354	29,845	46,670	66,163	84,408	89,333
Repairs and Maintenance	39,433	67,207	68,344	124,547	219,993	371,557	419,994
Bulk Water Purchases	-	-	-	-	-	-	-
Bad Debts	50,000	27,203	40,458	60,962	85,033	104,309	106,149
Annual Water Charge	9,788	-	-	-	-	-	-
Supervision and Regulation Fees	43,723	35,252	33,887	57,600	96,677	155,973	169,382
Value-Added Tax	-	-	-	-	-	-	-
Franchise Tax	-	-	-	-	-	-	-
General and Administrative Expenses	671,400	890,039	518,822	626,457	743,584	870,882	999,076
Total Operating Expenses	2,828,765	3,131,147	3,270,246	4,052,910	4,956,475	5,989,909	6,883,426
Net Operating Income	733,875	193,608	1,626,950	3,879,599	6,502,454	7,112,054	5,639,038
Depreciation	420,165	413,805	418,155	577,767	837,349	1,230,026	1,351,010
Net Income / (Loss) before Non-Operating Inc/	313,710	(220,197)	1,208,795	3,301,833	5,665,105	5,882,028	4,288,028
Non-Operating Income / (Expenses)	30,480	17,329	45,047	3,568	611	4,473	1,468
Net Income Before Interest	344,190	(202,868)	1,253,842	3,305,401	5,665,715	5,886,501	4,289,496
Interest Expense	-	-	418,000	1,074,333	2,060,667	2,002,000	1,789,333
Net Income / (Loss) before Tax	344,190	(202,868)	835,842	2,231,067	3,605,049	3,884,501	2,500,163
Provision for Income Tax	-	-	-	-	-	-	-
Net Income / (Loss) after Tax	344,190	(202,868)	835,842	2,231,067	3,605,049	3,884,501	2,500,163

3 Flow of Funds Statement

The Flow of Funds Statement shows funds from internal cash generation, changes in the Balance Sheet between the previous year and the current year, uses of the funds like debt service payments and capital investment requirements, and other sources of funds not coming from operations, such as loan proceeds, Depreciation Reserve Fund, donated funds, or additional equity contributions. The ending cash balance reflects the assumption given in the Assumptions sheet, based on how many months cash can cover operating expenses. Any cash surplus is deposited in a special time deposit account (termed as “purchase of deposits” in the table below). Should there be a cash deficit in any given year, funds from the special time deposit are first used (termed as “sale of deposits” in the statement below), before resorting to look for other fund sources. Table 5-4 shows how this appears in the Tariff Model.

Table 5-4 Flow of Funds Statement

	2008 Year 0	2009 Year 1	2010 Year 2	2011 Year 3	2012 Year 4	2013 Year 5
INTERNAL CASH GENERATION						
Net Income / (Loss) after Tax	(202,868)	835,842	2,231,067	3,605,049	3,884,501	2,500,163
Add: Depreciation	413,805	418,155	577,767	837,349	1,230,026	1,351,010
Add: Interest Expense	-	418,000	1,074,333	2,060,667	2,002,000	1,789,333
Operating Cash Flow	210,936	1,671,997	3,883,167	6,503,064	7,116,527	5,640,506
Cash, Beginning Balance	160,048	463,127	517,324	538,298	665,325	811,907
Other Assets (Increase) Decrease	-	(418,155)	(577,767)	(837,349)	(1,230,026)	(1,351,010)
Other Liabilities Increase (Decrease)	-	-	-	-	-	-
Working Capital (Increase)/Decrease	847,945	(92,055)	47,701	358,353	(101,066)	51,304
CASH BEFORE DEBT SERVICE	1,218,929	1,624,915	3,870,426	6,562,367	6,450,760	5,152,707
DEBT SERVICE PAYMENT						
Interest Payments	1,398,272	418,000	1,074,333	2,060,667	2,002,000	1,789,333
Principal Repayments	1,700,233	33,333	666,666	1,766,666	1,766,666	1,966,666
Total Debt Service	3,098,505	451,333	1,741,000	3,827,333	3,768,666	3,756,000
CASH AFTER DEBT SERVICE	(1,879,576)	1,173,582	2,129,426	2,735,034	2,682,094	1,396,708
CAPITAL INVESTMENT REQUIREMENTS						
Annual Capital Investment	145,000	5,320,405	8,652,740	13,089,236	4,032,800	-
Cash, Ending Balance	463,127	517,324	538,298	665,325	811,907	980,933
FINANCING REQUIREMENTS	(2,487,704)	(4,664,147)	(7,061,612)	(11,019,527)	(2,162,613)	415,774
OTHER FUND SOURCES						
Depreciation Reserve Fund	-	-	400,000	400,000	900,000	-
Additional Capital Contribution	-	-	-	-	-	-
Donations	3,065,172	-	-	-	-	-
Outstanding Loans	-	-	-	-	-	-
New Loans	-	3,800,000	6,600,000	10,700,000	1,200,000	-
TOTAL OF OTHER FUND SOURCES	3,065,172	3,800,000	7,000,000	11,100,000	2,100,000	-
CASH SURPLUS / (DEFICIT)	577,468	(864,147)	(61,612)	80,473	(62,613)	415,774
If Cash Surplus:						
Purchase of Deposits	577,468	-	-	80,473	-	415,774
If Cash Deficit:						
Sale of Deposits	-	864,147	61,612	-	62,613	-
Additional Equity Needed	-	-	-	-	-	-
Total Cash Raised	-	864,147	61,612	-	62,613	-

4 Balance Sheet

The Balance Sheet reflects the financial condition of the water utility at the end of each year. Only significant balance sheet accounts are shown separately. The other accounts are combined with the "Other" accounts. Table 5-5 shows how this appears in the Tariff Model.

Table 5-5 Balance Sheet

	2008	2009	2010	2011	2012	2013
	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
ASSETS						
PROPERTY AND EQUIPMENT						
Land	329,806	329,806	329,806	329,806	329,806	329,806
Property and Equipment excl. Land	13,793,485	13,938,485	19,258,890	27,911,631	41,000,867	45,033,667
Property and Equipment, At Cost	14,123,292	14,268,292	19,588,697	28,241,437	41,330,673	45,363,473
Less: Accumulated Depreciation	(7,072,795)	(7,490,950)	(8,068,716)	(8,906,065)	(10,136,091)	(11,487,101)
Property and Equipment, Net Book Value	7,050,497	6,777,342	11,519,980	19,335,372	31,194,582	33,876,371
Works in Progress	145,000	5,320,405	8,652,740	13,089,236	4,032,800	-
Depreciation Reserve Fund	-	418,155	595,921	1,033,270	1,363,296	2,714,306
CURRENT ASSETS						
Cash on Hand and in Bank	463,127	517,324	538,298	665,325	811,907	980,933
Short-Term Deposits	938,481	74,334	12,722	93,195	30,583	446,357
Accounts Receivable - Water	894,354	997,601	1,002,112	698,897	857,332	872,459
Prepaid Expenses	255,119	265,462	328,105	400,393	483,748	557,036
Inventories	16,927	16,365	28,536	47,693	75,994	84,888
Other Current Assets	1,335,210	1,335,210	1,335,210	1,335,210	1,335,210	1,335,210
TOTAL CURRENT ASSETS	3,903,217	3,206,296	3,244,983	3,240,712	3,594,774	4,276,883
Other Assets	179,769	179,769	179,769	179,769	179,769	179,769
TOTAL ASSETS	11,278,483	15,901,966	24,193,394	36,878,359	40,365,220	41,047,329
LIABILITIES AND CAPITAL						
CAPITAL						
Paid-up Capital Stock / Proprietor's Account	3,343,505	3,343,505	3,343,505	3,343,505	3,343,505	3,343,505
Donated Capital	6,583,363	6,583,363	6,583,363	6,583,363	6,583,363	6,583,363
Capital Reserves	-	-	-	-	-	-
Retained Earnings	636,493	433,624	1,269,467	3,500,534	7,105,583	10,990,084
Net Income (Loss) for the Year	(202,868)	835,842	2,231,067	3,605,049	3,884,501	2,500,163
Total Capital	10,360,492	11,196,334	13,427,402	17,032,450	20,916,952	23,417,114
LIABILITIES						
Long-Term Liabilities	367,334	3,500,668	8,334,001	17,267,335	16,500,669	14,534,002
CURRENT LIABILITIES						
Accounts Payable	517,324	538,298	665,325	811,907	980,933	1,129,546
Taxes Payable	-	-	-	-	-	-
Interest Payable	-	-	-	-	-	-
Other Current Liabilities	-	-	-	-	-	-
Due to Affiliated Company	-	-	-	-	-	-
Notes Payable	-	-	-	-	-	-
Current Portion of Long-Term Liabilities	33,333	666,666	1,766,666	1,766,666	1,966,666	1,966,666
TOTAL CURRENT LIABILITIES	550,657	1,204,964	2,431,991	2,578,573	2,947,600	3,096,213
Customers' Deposits	-	-	-	-	-	-
Other Liabilities	-	-	-	-	-	-
Total Liabilities	917,991	4,705,632	10,765,992	19,845,908	19,448,268	17,630,215
TOTAL LIABILITIES AND CAPITAL	11,278,483	15,901,966	24,193,394	36,878,359	40,365,220	41,047,329

5 Tariff Proposal Sheet

This sheet summarizes the tariff structure to be proposed to NWRB, based on projected revenue requirements of the water utility for the five-year tariff validity period. It shows the recommended tariff rates, evaluation of affordability of the minimum charge to the low income group, and evaluation of the water rate increase. If the existing rates have been in effect for less than three years, the proposed rates must not result to an increase higher than 80% of the existing tariff. For simplicity of implementation, the tariff rates are rounded to the nearest ten centavos.

Table 5-6 shows how this report appears in the Tariff Model.

Table 5-6 Recommended Tariff Rates

Public Tap

Meter Size	0-10 cu.m.	11-20 cu.m.	21-30 cu.m.	31-40 cu.m.	41-50 cu.m.	Over 50 cu.m.
1/2"	9.00	10.80	13.50	18.00	22.50	27.00

Residential and Institutional

Meter Size	0-10 cu.m.	11-20 cu.m.	21-30 cu.m.	31-40 cu.m.	41-50 cu.m.	Over 50 cu.m.
1/2"	12.00	14.40	18.00	24.00	30.00	35.90
3/4"	19.20	23.00	28.80	38.30	47.90	57.50
1"	38.30	46.00	57.50	76.60	95.80	114.90
1 1/2"	95.80	114.90	143.60	191.50	239.40	287.20
2"	239.40	287.20	359.00	478.70	598.30	718.00
3"	430.80	516.90	646.20	861.50	1,076.90	1,292.30
4"	861.50	1,033.80	1,292.30	1,723.00	2,153.80	2,584.50

Commercial / Industrial

Meter Size	0-25 cu.m.	25-1000 cu.m.	Over 1000 cu.m.
1/2"	24.00	47.90	71.80
3/4"	38.30	76.60	114.90
1"	76.60	153.20	229.80
1 1/2"	191.50	382.90	574.40
2"	478.70	957.30	1,435.90
3"	861.50	1,723.00	2,584.50
4"	1,723.00	3,446.00	5,168.90

AFFORDABILITY CRITERIA

Household Income of Low-Income Household	7,560
Ceiling, 5% of such Income	378
Monthly Revenue from Minimum Charge	120

RESULT **ACCEPTABLE**

TARIFF INCREASE CRITERIA

		ROI%
Existing Average Tariff	7.02	
No. of Years Being Implemented	5	
Proposed Average Tariff	8.45	12.00%
% Tariff Increase	20%	

RESULT **ACCEPTABLE**

This sheet also contains a section which allows the user to adjust the increment factor to manipulate the gap of water rates between quantity blocks, in adjusting the minimum charge so that it becomes affordable to the low income group in the water utility's service area, and

narrowing the gap between annual water revenues to be collected and the annual revenue requirements. This section is shown in Table 5-7 below.

The increment factor can be any set of numbers that increases as the quantity block goes up. To promote water conservation, the increment factor may go up steeper after the quantity block where the average monthly consumption belongs to. Since this is inputted by the user, it may be adjusted accordingly until the desired water rates are achieved.

Other discussions on the tariff computation are found in Section 7.6 Consumption Sheet and Section 7.7 Tariff Computation Sheet.

Table 5-7. Incremental Factor

Incremental Factor						
	0-10 cu.m.	11-20 cu.m.	21-30 cu.m.	31-40 cu.m.	41-50 cu.m.	Over 50 cu.m.
Public Tap	0.75					
Residential/Institutional	1.00	1.20	1.50	2.00	2.50	3.00
Commercial / Industrial	1.00		2.00		3.00	
Resulting Revenues						
Total Revenues	10,006,200					
Desired Revenues	9,982,612					
Difference	23,588	0%				

5.2 Evaluation Sheet

This sheet is a computation sheet that determines the required average tariff for the projected five years, starting with the maximum allowable return on investments (ROI) of 12%. It also allows the water utility to change the ROI rate to the rate it wants to implement, as long as this rate does not exceed 12%⁶. This is done by changing the rate in the yellow cell of the line “Maximum Allowable Rate of Return”. Aside from this input, all the other data in this sheet come from various other sheets.

This sheet shows how the average tariff is computed for each of the five projection years and their average. Should the water utility opt for a lesser tariff than the suggested tariff at 12% ROI, this sheet also shows the resulting ROI the water utility would achieve.

Since it is not practical to increase or decrease water rates from year to year, the water utility is allowed to use the average tariff for the five years. The calculation of this average tariff is shown below. Refer also to Table 5-8 on how this Evaluation Sheet appears in the Tariff Model.

⁶ The ROI may exceed 12% when the requested tariff rates are for subsequent approval by NWRB. For justifiable reasons, NWRB may allow the water utility to be compensated for not being able to attain its approved ROI during the previous tariff period. The compensation may result to an ROI above 12% in the next tariff period.

Table 5-8 Return on Investments Evaluation – Projected Years

	2009 Year 1	2010 Year 2	2011 Year 3	2012 Year 4	2013 Year 5	Total Years 1-5
Property & Equipment, beg	14,268,292	19,588,697	28,241,437	41,330,673	45,363,473	
New Investments	5,320,405	8,652,740	13,089,236	4,032,800	-	
Property and Equipment in Service Entitled to	19,588,697	28,241,437	41,330,673	45,363,473	45,363,473	
Less: Accumulated Depreciation	(2,699,424)	(3,409,201)	(4,500,152)	(6,046,703)	(7,716,493)	
Net Book Value	16,889,272	24,832,236	36,830,521	39,316,769	37,646,979	
Add: Working Capital						
Operating Expenses excluding depreciation	3,270,246	4,052,910	4,956,475	5,989,909	6,883,426	
2-Months Average Cash Operating Expenses	545,041	675,485	826,079	998,318	1,147,238	
Total Invested Capital Entitled to Return	17,434,313	25,507,721	37,656,600	40,315,087	38,794,217	31,941,588
Maximum Allowable Rate of Return	12.00%	12.00%	12.00%	12.00%	12.00%	
Maximum Allowable Net Income	2,092,118	3,060,927	4,518,792	4,837,810	4,655,306	
Maximum Allowable Net Income	2,092,118	3,060,927	4,518,792	4,837,810	4,655,306	
Operating Expenses	3,270,246	4,052,910	4,956,475	5,989,909	6,883,426	
Depreciation	578,073	709,777	1,090,951	1,546,551	1,669,790	
Revenue Requirement	5,940,437	7,823,613	10,566,219	12,374,271	13,208,522	49,913,061
Volume Sold, m3	478,652	721,224	1,005,998	1,234,051	1,255,824	4,695,749
Required Average Tariff (Php/cum)	10.25	8.34	7.79	7.98	8.92	8.45
Average Return on Investments						
Net Income (Loss) Before Tax, net	1,048,877	3,169,823	5,411,502	5,565,503	3,969,248	3,832,991
Average Water Revenues/m3 Sold	8.45	8.45	8.45	8.45	8.45	
Rate of Return	6.0%	12.4%	14.4%	13.8%	10.2%	12.0%

A. Compute the Total Invested Capital Entitled to Return

1. Compute the Net Book Value of assets in service entitled to return.
 = Property and equipment in service entitled to return (PEISER), beginning
 + New capital investments during the year
 = PEISER, end
 - Accumulated Depreciation
 = Net Book Value of PEISER
2. Compute 2-months working capital.
 = Operating expenses (OPEX) for the year, excluding depreciation
 / 12 months to get average monthly OPEX
 X 2 months
3. Total Invested Capital Entitled to Return
 = Net Book Value of PEISER (A-1 above)
 + 2 months working capital (A-2 above)

B. Compute the Revenue Requirements.

1. Compute the Allowable Net Income
 = Total Invested Capital Entitled to Return (A-3 above)
 X Allowable rate of return

2. Revenue Requirements
 - = Allowable Net Income (B-1 above)
 - + Operating Expenses (same OPEX as used in A-2 above)
 - + Depreciation of all assets in service

- C. Compute the Required Average Tariff
 - = Revenue Requirements (B-2)
 - / Volume Sold

- D. Compute the Average Tariff for the next five years.
 1. Get the sum of all the Revenue Requirements for Years 1-5.
 2. Get the sum of all Volume Sold for Years 1-5.
 3. Average Tariff for Years 1-5
 - = Sum of Revenue Requirements
 - / Sum of Volume Sold

5.3 Highlights

The Highlights sheet contains significant variables that can be manipulated to fine-tune the results under one sheet. It makes iterations of combination of variables convenient because as variables are changed, important results are immediately displayed on the same sheet.

These significant variables are in yellow cells, meaning they may be changed directly in this sheet. These are:

1. Total installed production capacity in lps
2. % non-revenue water
3. New connections
4. Number of employees
5. Collection period

Check the following critical lines:

1. Average Tariff/m3 line

The contents of the average tariff for years 1-5 must be copied to the yellow cell in year 1.

If the water utility would like to take full advantage of the maximum allowable net income to yield 12%, then the average tariff for years 1-5 must be copied to the yellow cell under “average tariff/m3 for implementation” in year 1. Otherwise, the user may input in the yellow cell the average tariff that it deems proper, as long as the resulting average return on investments during years 1-5 does not exceed 12%⁷.

2. Additional Equity Needed line

The cells in this line should be equal to zero. If this shows any amount, this will be considered as additional equity contribution. But if the water utility does not intend to add equity, it must look for other fund sources. These can be through a soft loan from an affiliated company (if available), tapping the Depreciation Reserve Fund (only if the shortage is due to investment

⁷ Ibid

requirements), obtaining a short-term loan, finding grants or donations for capital investments, or securing a long-term loan.

3. Short-Term Deposits, Cumulative

This line shows the cumulative balance of short-term deposits at the end of the year. It may be allowed to accumulate funds for future significant investment requirements. Otherwise, it should not accumulate excessive balances. If it does, funds from other sources may be decreased to use up the excessive short-term deposit balance.

4. Depreciation Reserve Fund, Usage

The amount of Depreciation Reserve Funds that may be used should not exceed the total investments for the year. It is also sensible to leave something in the fund for unforeseen events that may arise in the succeeding years.

5. Annual Return on Investments, average for Years 1-5

This should not exceed 12%⁸.

In case there is a problem in any of these critical lines, the variables must be changed accordingly until all the problems are eliminated.

Table 5-9 shows how this Highlights sheet appears in the Tariff Model.

⁸ Ibid

Table 5-9 Highlights Sheet

	2007 Actual	2008 Year 0	2009 Year 1	2010 Year 2	2011 Year 3	2012 Year 4	2013 Year 5	Average Years 1-5
Total Installed Production Capacity, Ips	33.00	33.00	33.00	53.00	53.00	53.00	53.00	
% Non-Revenue Water	12%	16%	15%	14%	12%	12%	12%	
New Connections	63	104	116	498	895	527	84	
Total Connections	2,621	2,725	2,841	3,339	4,234	4,761	4,845	
% Population Served	38%	101%	105%	122%	152%	169%	170%	
Water Surplus / (Shortage) (Ips)	18.22	4.26	6.04	(2.69)	(6.05)	(14.27)	(15.05)	
Number of Employees	11	11	13	15	17	19	21	
Employees/1000 Connections	4.30	4.20	4.04	4.58	4.49	4.02	3.99	
Personnel Ratio	238	248	219	223	249	251	231	
Collection Period (days)	185	120	90	60	30	30	30	
Net Income Ratio	10%	-6%	17%	28%	31%	30%	20%	
Operating Ratio	79%	94%	67%	51%	43%	46%	55%	
Average Operating Costs, P/m3	6.90	8.08	6.83	5.62	4.93	4.85	5.48	
LT Debt Equity Ratio	0.15	3%	24%	38%	50%	44%	38%	
Debt to Net Fixed Assets Ratio		5%	29%	41%	53%	47%	43%	
Debt Service Ratio		0.07	3.70	2.23	1.70	1.89	1.50	
Average Tariff/m3 to yield ROI	11.90	13.28	10.25	8.34	7.79	7.98	8.92	8.45
Average Tariff/m3 for implementation	7.02	7.02	8.45	8.45	8.45	8.45	8.45	8.45
Annual Return on Investments	-3.85%	-7.67%	6.02%	12.43%	14.37%	13.81%	10.23%	12%
Short-Term Deposits, cumulative		938,481	74,334	12,722	93,195	30,583	446,357	
Additional Equity Needed (should be = 0)		-	-	-	-	-	-	
Depreciation Reserve Fund Available, beg of yr		-	-	418,155	595,921	1,033,270	1,363,296	
Depreciation Reserve Fund, Usage				400,000	400,000	900,000		
Total Investments, Current Price		145,000	5,320,405	8,652,740	13,089,236	4,032,800	-	
Due to Affiliated Company - Soft Loan								
Due to Affiliated Company - Payment								
Notes Payable - Addition								
Notes Payable - Payment								
Grant		3,065,172						
Additional Capital								
New Loan 1			3,800,000					
New Loan 2				6,600,000				
New Loan 3					10,700,000			
New Loan 4						1,200,000		
New Loan 5								

6 Input Sheets

Input sheets are where data are entered into the Tariff Model. **Data should be entered in yellow cells only.** The other cells are protected to prevent accidental inputs into these cells that may disconnect the linkages necessary to produce the reports generated in this Model.

6.1 Opening Sheet

This sheet is where encoding of input data starts.

For water utilities that have other lines of business other than water supply services, encode only those accounts for water utility operations regulated by NWRB. This implies that the audited Income Statement may not be copied exactly into the Tariff Model.

Encode following data:

1 Name of the water utility

2 Case number of the application with NWRB

These two data are picked up as headings of all the sheets in the Tariff Model, as well as in the reports that are generated, so that there is no need to copy these headings to other sheets.

3 Last historical year

This is the year of the latest historical data available. This year is picked up in the column headings of other sheets.

4 Earliest historical year

This is the year of the earliest historical data available. This year is used especially in the CPX sheets.

5 Income Statement

The following are the source documents required in encoding the Income Statement:

- Audited Income Statement
 - for the last two years (for the initial tariff application), or
 - for the last five years (for subsequent tariff applications)

Note that the accounts appearing in the water utility's Income Statement may need to be reclassified to conform to the classification in the sheet. This is required for uniformity of account classification among water utilities and to streamline projections of OPEX accounts. Income Statement accounts not appearing on the sheet may be lumped together under the account "Other General and Administrative Expenses. Table 6-1 shows the Income Statement portion of the Opening sheet as well as the other inputs mentioned above.

Table 6-1 Income Statement Input Sheet

Matubig Water Utility

Case No.

LAST HISTORICAL YEAR: 2007
 EARLIEST HISTORICAL YEAR 2004

OPENING BALANCES

	2003	2004	2005	2006	2007
INCOME STATEMENT					
Operating Revenues					
Water Revenues		3,002,713	3,059,296	3,247,759	2,877,983
New Connection Fees		62,477	81,312	79,953	97,378
Other Operating Revenues		29,636	7,831	12,482	587,279
Total Operating Revenues	-	3,094,825	3,148,439	3,340,193	3,562,640
Operating Expenses					
Personnel		1,735,841	1,884,167	2,002,229	1,952,568
Management Fees					
Power		11,995	13,635	10,000	27,160
Chemicals		35,082	25,007	29,571	34,692
Repairs and Maintenance		6,809	22,472	20,125	39,433
Bulk Water Purchases					
Bad Debts			5,000	30,000	50,000
Annual Water Charge					9,788
Supervision and Regulation Fees		44,745	43,525	45,331	43,723
Value-Added Tax					
Franchise Tax					
Other General and Administrative Expenses		355,798	311,567	386,136	671,400
Depreciation		350,000	350,000	400,000	420,165
Interest Expense		59,550	23,600		
Provision for Income Tax					
Non-Operating Income/(Expenses)					30,480
NET INCOME / (LOSS)	-	495,005	469,466	416,802	344,190

6 Balance Sheet

The following are the source documents required in encoding the Balance Sheet:

- Audited Balance Sheet
 - for the last two years (for the initial tariff application), or
 - for the last five years (for subsequent tariff applications)

Like the Income Statement, Balance Sheet accounts have been standardized so that the Tariff Model may be used by almost any water utility. Only Balance Sheet accounts that are directly linked to water operations are shown individually. Other insignificant accounts may be grouped together with the “Other” accounts.

For water utilities that have other lines of business other than water supply services, where the Balance Sheet accounts reflect the financial condition of all these lines of business, the following accounts pertaining to water operations MUST still be provided, so as to enable the Tariff Model to project a Balance Sheet for the utility:

1. Accounts Receivable – Water Supply
2. Materials Inventory

3. Property and Equipment In Service, at cost
4. Accumulated Depreciation
5. Customers' Deposits

The net effect of these accounts will be assumed as capital or equity (and to be encoded as such in the Opening sheet) for the water operations.

The Balance Sheet for every year should be balanced.

Table 6-2 shows the Balance Sheet portion of the Opening sheet.

Table 6-2 Balance Sheet Input Sheet

BALANCE SHEET					
Land			323,326	323,326	329,806
Property and Equipment in Service		11,684,660	12,351,917	13,065,574	13,793,485
Accumulated Depreciation		(3,580,576)	(3,930,576)	(4,220,176)	(6,658,990)
Works in Progress					
Depreciation Reserve Fund					
Other Assets		146,474	128,474	165,549	179,769
Cash on Hand and in Bank		88,310	239,215	193,563	160,048
Short-Term Deposit		338,228	344,197	344,197	361,013
Accounts Receivable - Water		1,392,374	1,458,624	1,451,539	1,461,952
Prepaid Expenses					
Inventories		123,625	100,415	83,649	35,068
Other Current Assets		1,072,511	1,346,365	1,499,031	1,335,210
TOTAL ASSETS	-	11,265,606	12,361,958	12,906,252	10,997,360
Paid-up Capital Stock / Proprietor's Account		2,325,675	3,032,668	3,335,798	3,343,505
Donated Capital		5,128,912	5,508,559	5,508,559	3,518,191
Capital Reserves					
Retained Earnings		49,594	179,768	777,976	292,302
Net Income (Loss) for the Year	-	495,005	469,466	416,802	344,190
Long-Term Liabilities		1,364,072	1,364,072	1,364,072	1,364,072
Customers' Deposits					
Other Liabilities					
Accounts Payable			179,226	217,809	
Taxes Payable				6,631	
Interest Payable		506,037	506,037	506,037	1,398,272
Other Current Liabilities		465,306	385,334	35,741	
Due to General Fund		194,177			
Notes Payable					
Current Portion of Long-Term Liabilities		736,828	736,828	736,828	736,828
TOTAL LIABILITIES AND CAPITAL	-	11,265,606	12,361,958	12,906,252	10,997,360

6.2 Assumptions Sheet

The Assumptions sheet contains projection parameters that will be used by the Tariff Model. These are:

1 Inflation

Inflation is used in escalating some OPEX and capital investments at constant prices to convert them to current prices.

This is the inflation projected by the *Bangko Sentral ng Pilipinas* and used by the National Economic and Development Authority in its Medium-Term Philippine Development Plan. Table 6-3 shows how this appears in the Assumptions Sheet.

Table 6-3 Inflation Assumption

	2007 Actual	2008	2009	2010 Projected	2011	2012	2013
INFLATION							
Cost Escalation Rates	0.0%	0.0%	6.0%	5.0%	4.0%	4.0%	4.0%
Cost Escalation Factor	1.00	1.00	1.06	1.11	1.16	1.20	1.25

2 Average Income of Low-Income Household

This assumption is used in determining the affordability of the minimum charge to a low-income household. The minimum charge should not exceed 5% of its household income.

The average income of a low-income household varies from one locality to another. This is available from a publication of the National Statistics Office that is prepared every five years. The last issuance was in year 2000. The 2000 income is escalated by a rate suggested in the NSO publication to arrive at the household income for any given year. Table 6-4 shows how this appears in the Assumptions Sheet.

Table 6-4 Average Income of Low-Income Household

	2007 Actual	2008	2009	2010 Projected	2011	2012	2013
AVERAGE INCOME OF LOW-INCOME HOUSEHOLD							
Cost Escalation Rates	8%	8%	8%	8%	8%	8%	8%
Cost Escalation Factor	1.26	1.00	1.08	1.17	1.26	1.36	1.47
Household Income	7,000	7,000	7,560	8,165	8,818	9,523	10,285

Balance Sheet Accounts Assumptions

3 Cash Position

The cash position assumption determines the ending cash balance to appear in the Balance Sheet. It is projected as the number of months of operating expenses that cash can cover. The industry standard for this ratio is two to three months of OPEX.

4 Collection Period

The assumption of collection period determines the ending balance of accounts receivable from water sales in the Balance Sheet. It also affects the cash position. The shorter this collection period, the better, because there will be a higher cash balance for the water utility. The assumption is represented as number of days a water bill gets paid and becomes converted to cash. It is computed as follows:

$$= \frac{\text{Accounts Receivable from Water Sales}}{\text{Water Revenues} / 365 \text{ days}}$$

This is not inputted in this sheet, but in the Highlights sheet. This indicator is considered critical as it affects the liquidity of the water utility. It may need to be changed to improve the projection results.

5 Prepaid Expenses

The prepaid expenses assumption determines the ending balance of prepaid expenses in the Balance Sheet. The assumption is represented as the equivalent number of days of operating expenses.

6 Inventory Management

The inventory management assumption determines the ending balance of materials inventory. It is represented by the number of months of direct costs (chemicals and maintenance materials).

7 Accounts Payable

The accounts payable assumption determines the ending balance of accounts payable in the Balance Sheet. The assumption is represented as number of months of operating expenses.

8 Notes Payable

This assumption computes the interest rate on notes payable. The assumption is represented as a percentage per annum.

Table 6-5 shows how these Balance Sheet assumptions appear in the Assumptions Sheet.

Table 6-5 Balance Sheet Assumptions

	2007 Actual	2008	2009	2010 Projected	2011	2012	2013
BALANCE SHEET ACCOUNTS							
Cash Position	0.8	2.0	2.0	2.0	2.0	2.0	2.0
Collection Period (days)	288	180	150	120	90	90	90
Prepaid Expenses	1	30	30	30	30	30	30
Inventory Management	40	2	2	2	2	2	2
Accounts Payable	0.00	2.0	2.0	2.0	2.0	2.0	2.0
Notes Payable							

Income Statement Accounts Assumptions

9 Interest Earned

This assumption determines the interest income to be earned from the Special Time Deposit which is a repository of cash in excess of the cash requirement, as defined in paragraph 3-Cash Position above. The assumption is the going special time deposit rate in the market.

10 Number of Employees

This assumption affects the amount of Personnel costs of the water utility. The assumption is the projected number of employees at year-end.

11 Personnel Cost

This assumption is another determinant of Personnel cost. This represents the escalation for salaries. It may be pegged to general inflation. If the water utility has specific plans of a general increase in salaries other than inflation, this is the place where this general increase should be encoded.

12 Management Fees

This assumption determines the amount of management fees to appear in the Income Statement, if the water utility has a management contract. The escalation factor depends on the terms of the management contract.

13 Power

This assumption is for the escalation factor of power costs. It may be pegged to general inflation. It may have its own escalation factor, especially if government has revealed its plans of raising power costs. This assumption is used in the Tariff Model by escalating the previous unit cost of power per cubic meter produced, then multiplying this escalated unit cost by the projected volume produced that needs to be pumped. For water utilities where their water source is both gravity fed and pumped, only the volume pumped is used in calculating the power cost.

14 Chemicals

This assumption is for the escalation factor of chemical costs. It may be pegged to general inflation. It may have its own escalation factor, especially if chemicals are imported and are heavily dependent on the fluctuation of the peso against the US dollar. This assumption is used in the Tariff Model by escalating the previous unit cost of chemicals per cubic meter produced, then multiplying this escalated unit cost by the projected volume to be produced.

15 Chemical Cost/m³ Produced

This assumption is useful for a water utility that will start to chlorinate its water production, where there is no historical cost to use as a basis for projections.

16 Bulk Water Purchases

This assumption is for water utilities that purchase water in bulk from MWSI or MWCI, a water district, or other sources. The assumption required is for the escalation of the unit cost of bulk water purchased. This should come from the contract with the bulk water supplier.

17 Repairs and Maintenance

This assumption is used in the Tariff Model to calculate repairs and maintenance for the year based on the net book value of assets of the water utility. The assumption required is the percentage of net assets to be spent for repairs and maintenance. Historical data may not be a reliable basis because the water utility may have been able to afford to spend at that level only. A more reliable basis would be the water utility's Asset Management Plan and the industry average for this expense account.

18 Bad Debts

This assumption determines the amount of Bad Debts expense to be declared in the projected Income Statement. This assumption is represented as a percentage of water sales. This percentage may be based on historical experience. It may also come from the water utility's best estimate based on its plans to clean up its receivables and write-off uncollectible accounts.

19 General and Administrative Expenses

This assumption determines the amount of these expenses to be declared in the Income Statement. This assumption is represented as a percentage of Personnel costs. Management fees may also be included with Personnel, especially if the water utility contracts out most of its operations to the management company. Historical experience must be considered in making this assumption, as well as the industry average.

20 Annual Water Charge per Well

This assumption is a rough estimate of how the annual water charge should be estimated. Ideally, the annual water charge should be based on the amount assessed by NWRB depending on the discharge of the water utility's well. If there is more than one well, the average water charge for all the wells should be declared in the Assumptions sheet.

21 Average Depreciation Rate

To simplify projections, the aggregate depreciation rate of all property and equipment (excluding land) is used. This rate is computed in the Opex sheet.

22 Franchise Tax

This assumption is in anticipation of the full enforcement of the payment of the franchise tax. At the moment, the assumption percentage is multiplied by zero since it is not yet fully in effect. Should the water utility be paying franchise tax already, the zero multiplier can just be changed to "1" to activate the formula. The franchise tax is computed as 2% of water revenues after deducting bad debts. This is shown in the Tariff Model as follows:

	2003	2004	2007 Actual	2008	2009	2010 Projected	2011	2012	2013
FRANCHISE TAX									
Operating Revenues				4,108,663	6,320,999	8,723,497	9,310,868	11,391,824	12,417,775
% Net of Bad Debts				100%	100%	100%	100%	100%	100%
Net Operating Revenues				4,108,663	6,320,999	8,723,497	9,310,868	11,391,824	12,417,775
Franchise Tax for the Year				82,173	126,420	174,470	186,217	227,836	248,355

23 Value-Added Tax (VAT) Rate

Like the Franchise Tax, this assumption is in anticipation of the inclusion of water utilities in the payment of the VAT. Should that time come, this assumption can just be activated. VAT is computed at 12% of water sales. This is shown in the Tariff Model as follows:

	2003	2004	2007 Actual	2008	2009	2010 Projected	2011	2012	2013
VALUE-ADDED TAX (VAT)									
Water Sales	-	-	3,599,305	3,561,587	5,038,077	6,381,410	7,320,124	8,665,769	9,796,388
VAT Rate				12%	12%	12%	12%	12%	12%
Amount of VAT	-	-	-	427,390	604,569	765,769	878,415	1,039,892	1,175,567

24 Income Tax Rate

This assumption is used by the Tariff Model to calculate the provision for income tax. The assumption is the percentage of income tax the water utility has to pay.

Table 6-6 shows how these Income Statement assumptions appear in the Assumptions Sheet.

Table 6-6 Income Statement Assumptions

	2005 Actual	2006 Actual	2007 Actual	2008	2009	2010 Projected	2011	2012	2013
INCOME STATEMENT ACCOUNTS									
Interest Earned				3.6%	3.6%	3.6%	3.6%	3.6%	3.6%
Number of Employees	15	15	15	15	17	19	21	23	24
Personnel Cost		12%	-7%	10%	10%	10%	10%	10%	10%
Management Fees	0%	0%	0%	0%	0%	0%	0%	0%	0%
Power		53%	-27%	10%	10%	10%	10%	10%	10%
Chemicals	0%	0%	-19%	0%	6%	5%	4%	4%	4%
Chemical cost/m3 produced	-	0.023	0.019	0.10	0.10	0.10	0.10	0.10	0.10
Bulk Water Purchases	0%	0%	0%	0%	0%	0%	0%	0%	0%
Repairs and Maintenance	2%	1%	1%	5%	5%	5%	5%	5%	5%
Bad Debts	0%	0%	0%	0%	0%	0%	0%	0%	0%
General & Admin. Expenses	17%	18%	25%	20%	20%	20%	20%	20%	20%
Annual Water Charge per Well									
Average Depreciation Rate	3%	2%	3%	3%					
Franchise Tax			2%						
Value-Added Tax (VAT) Rate			12%						
Income Tax Rate			32%						

Supply and Demand Assumptions

25 Total Number of Deepwells

This assumption determines the amount of annual water charges to be projected. It also gives an indication of increased production capacity. This assumption should be based on the water utility's Business Plan. Should there be an increase in the number of wells, there should be a corresponding investment for it.

26 Installed Production Capacity, Ips

This assumption determines the sufficiency of the water utility's own production to meet production requirements. It is used in checking whether there will be a water shortage or surplus. This assumption is measured in liters per second (lps). It should also be based on the water utility's Business Plan. Should there be an increase in the total installed capacity, there should also be a corresponding investment for it.

27 Volume Produced

The volume produced for the last historical year is required to be inputted here. It is used in calculating non-revenue water and the basis for future production. This data comes from the water utility's production data for the whole year, expressed in cubic meters. Only the figure for the last historical year is required.

28 Bulk Water Purchases

If the water utility supplements its water production with bulk water purchases, the volume of such purchases for a year, in cubic meters, is required to be inputted here.

29 Volume Sold

The total volume sold is used to calculate actual non-revenue water and actual average monthly consumption per connection. The total volume billed or sold for the last historical year is required to be inputted here. This figure should tally with the annual consumption in the Tariff Computation sheet.

30 % Non-Revenue Water

The non-revenue water percentage for the historical year is computed based on the volume produced including treated water purchases, and volume sold. For the projection years, this is a target. It is inputted in the Highlights sheet where it may be changed to improve results of projections. This is therefore a non-input cell. % NRW is computed as follows:

$$= \frac{\text{Volume Produced and Treated Water Purchased} - \text{Volume Sold}}{\text{Volume Produced and Treated Water Purchased}}$$

31 New Connections

The number of new connections added during the last historical year is inputted here. Subsequent increases in connections are inputted in the Highlights sheet where they may be changed to improve results of projections.

32 Total Connections

Only the total number of connections at the end of the last historical is inputted. The total connections for the subsequent years are calculated by adding new connections made during the year.

33 Average Consumption per Connection per Month

This assumption for the last historical is computed. For the subsequent years, this assumption may be the same as the previous year. It may be different based on the Business Plan, depending on additional water sources to be tapped, plans to increase service hours, or for other justified reasons. This assumption is expressed in cubic meters. Average consumption per connection per month is computed as follows:

$$= \text{Total Volume Sold} / \text{Total Connections} / 12 \text{ Months}$$

34 Average Persons per Household

This assumption is used to calculate demand and population coverage. This assumption may come from a survey of households in the water utility's service area, or from census data for the locality of the water utility.

35 Population in Service Area

This assumption is used to determine service coverage. This data may come from census data for the locality of the water utility, or more specific data available, such as the total number of households within the subdivision served by the water utility.

Table 6-7 shows how these supply and demand assumptions appear in the Assumptions Sheet.

Table 6-7 Supply and Demand Assumptions

	2007 Actual	2008	2009	2010 Projected	2011	2012	2013
SUPPLY AND DEMAND							
Total No. of Deepwells/Springs	3	3	3	3	3	3	3
Total Installed Production Capacity	33.00	18.90	23.90	23.90	30.20	30.20	30.20
Volume Produced, m3/year	466,091						
Bulk Water Purchases, m3/year							
Volume Sold, m3/year	410,160						
% Non-Revenue Water	12%	16%	15%	14%	12%	12%	12%
New Connections	63	104	116	498	895	527	84
Total Connections	2,621	2,725	2,841	3,339	4,234	4,761	4,845
Ave. Consumption/Conn./Mo.	13.20	11.86	14.04	18.00	19.80	21.60	21.60
Average Persons per Household	5.2	5.2	5.2	5.2	5.2	5.2	5.2
Population in Service Area	35,708	13,966	14,126	14,289	14,453	14,619	14,786
Growth Rate		1.15%	1.15%	1.15%	1.15%	1.15%	1.15%

6.3 Performance Improvement Plan (PIP) Sheet

The PIP sheet is a copy of the Disbursement Schedule from the Performance Improvement Plan developed by the utility. Since the PIP may vary from one water utility to another, this sheet is not protected to allow the user to copy the PIP manually into this sheet.

This sheet contains two major sections.

1. The upper section contains the **Performance Improvement Plan** classified according to major works or activities, with the cost distributed over the years that they will be implemented.
2. The lower section is the **Summary** of the PIP classified according to capital expenditures and recurring costs.

The user is encouraged to prepare the Summary portion to ensure that all the PIP investments and expenses are included in the financial projections.

- a. The **Capital Expenditures portion** classifies the investments according to the asset classification found in the CPX Depn Table sheet. These capital expenditures are copied to the CPX Inv Constant sheet to the corresponding asset classification. If there are capital investments that are funded by grants or donations, these should be copied also to the CPX Inv No Return Constant sheet.
- b. The **Recurring Costs portion** is for the parts of the PIP that are not capital investments. They are copied to the Opex Sheet, specifically to the General and Administrative Expenses section.

As a check that all the PIP investments and expenses have been considered, the grand total of the upper portion of the PIP should tally with the Summary portion. The sum of the capital expenditures portion for per year should be equal with the sum of the investments for the corresponding year in the CPS Inv No Return Constant sheet. The sum of the recurring costs portion per year should tally with amount in the General and Administrative Expenses for the corresponding year.

An illustration of this PIP sheet can be seen in Table 6-8 below.

Table 6-8 PIP Sheet

Activity	Cashflow Projection* (Php)						
	Total	Prep Year 2008	Year 1 2009	Year 2 2010	Year 3 2011	Year 4 2012	Year 5 2013
Physical Improvements							
Existing System Improvement							
Laterals in Poblacion area (90-110mm x 3,595 m)	2,958,000				2,958,000		
	-						
Service Area and Facilities Expansion							
Service Area Expansion: Brgys Mapawa, Coronobe & New Albay	-						
New Spring Box with Filtration Plant at B. Silang	1,000,000		1,000,000				
Transmission line from B Silang springbox to Poblacion Junction	7,948,500		3,974,250	3,974,250			
Transmission line from Poblacion Junctn to Mapawa	3,300,000			3,300,000			
Transmission line from Poblacion Junctn to Coronobe	3,300,000				3,300,000		
Transmission line from Poblacion Junctn to New Albay	3,300,000				3,300,000		
Transmission line from Ipil-ipil to Mauswagon	1,650,000				1,650,000		
Transmission line from Bagong Silang to New Panay	3,300,000					3,300,000	
Production Flowmeters	150,000				100,000	50,000	
Service Vehicle	500,000			500,000			
	-						
TOTAL, PHYSICAL IMPROVEMENTS	27,406,500	-	4,974,250	7,774,250	11,308,000	3,350,000	-
Institutional / Organizational / Management							
System & Network Analysis	400,000	400,000	-	-	-	-	-
Survey of transmission pipeline: profile & site topo	50,000	50,000	-	-	-	-	-
Staff capacity building - technical, billing & collection	50,000	10,000	10,000	10,000	10,000	10,000	-
Automation of Billing and Accounting System	100,000	100,000	-	-	-	-	-
Asset Management Plan (Computer and software)	20,000	20,000	-	-	-	-	-
Customer Relation (laptop and LCD projector)	90,000	45,000	45,000	-	-	-	-
	-						
TOTAL INSTITUTIONAL, COMMERCIAL AND FINANCIAL IMPROVEMENTS	710,000	625,000	55,000	10,000	10,000	10,000	-
ANNUAL TOTALS	28,116,500	625,000	5,029,250	7,784,250	11,318,000	3,360,000	-
* Note all costs estimates are given in constant price.							
TO PIP IN FINPRO							
Capital Expenditures							
Spring box with filtration plant	1,000,000	-	1,000,000	-	-	-	-
Production Flowmeters	100,000	-	-	-	100,000	-	-
Production Flowmeters	50,000	-	-	-	-	50,000	-
Service Vehicle	500,000	-	-	500,000	-	-	-
Asbestos Pipes	3,974,250	-	3,974,250	-	-	-	-
Asbestos Pipes	3,974,250	-	-	3,974,250	-	-	-
Asbestos Pipes	3,300,000	-	-	3,300,000	-	-	-
Asbestos Pipes	3,300,000	-	-	-	3,300,000	-	-
Asbestos Pipes	3,300,000	-	-	-	3,300,000	-	-
Asbestos Pipes	1,650,000	-	-	-	1,650,000	-	-
Asbestos Pipes	3,300,000	-	-	-	-	3,300,000	-
Asbestos Pipes	2,958,000	-	-	-	2,958,000	-	-
Automation of Billing and Accounting System	100,000	100,000	-	-	-	-	-
Customer Relation (laptop and LCD projector)	90,000	45,000	45,000	-	-	-	-
	-						
Total Capital Expenditures	27,596,500	145,000	5,019,250	7,774,250	11,308,000	3,350,000	-
Recurring Costs							
System & Network Analysis	400,000	400,000	-	-	-	-	-
Survey of transmission pipeline: profile & site topo	50,000	50,000	-	-	-	-	-
Staff capacity building - technical, billing & collection	50,000	10,000	10,000	10,000	10,000	10,000	-
Asset Management Plan	20,000	20,000	-	-	-	-	-
	-						
Total Recurring Costs	520,000	480,000	10,000	10,000	10,000	10,000	-
Total Performance Improvement Plan	28,116,500	625,000	5,029,250	7,784,250	11,318,000	3,360,000	-

7 Computation Sheets

Computation sheets are those that contain mostly formulas with a few input cells. These are the computation sheets:

7.1 Supply & Demand Sheet

The supply and demand sections of this sheet are all computations, with no yellow or input cells. The supply section shows whether there is a water surplus or shortage, depending on the total production as against the total production requirement. The demand section shows the volume that can be sold, based on the number of connections and average consumption. Table 7-1 shows how this appears in the Tariff Model.

Table 7-1 Supply and Demand Section

	2007 Actual	2008	2009 Projected	2010	2011	2012	2013
SUPPLY							
Installed Production Capacity, Ips	33.00	33.00	33.00	53.00	53.00	53.00	53.00
Production Capacity (m3/year)	1,040,688	1,040,688	1,040,688	1,671,408	1,671,408	1,671,408	1,671,408
% Non-Revenue Water	12%	16%	15%	14%	12%	12%	12%
Production Requirement (m3/year)	466,091	461,537	563,120	838,633	1,143,180	1,402,331	1,427,073
Bulk Water Purchases (m3/year)	-	-	-	-	-	-	-
Total Own Production and Water Purchases (m3/year)	1,040,688	1,040,688	1,040,688	1,671,408	1,671,408	1,671,408	1,671,408
Water Surplus / (Shortage) (m3/year)	574,597	579,151	477,568	832,775	528,228	269,077	244,335
Water Surplus / (Shortage) (Ips)	18.22	18.36	15.14	26.41	16.75	8.53	7.75
DEMAND							
New Connections	63	104	116	498	895	527	84
Total Connections	2,621	2,725	2,841	3,339	4,234	4,761	4,845
Average Persons per Household	5.2	5.2	5.2	5.2	5.2	5.2	5.2
Population Served	13,629	14,170	14,773	17,363	22,017	24,757	25,194
Population in Service Area	35,708	13,966	14,126	14,289	14,453	14,619	14,786
% Population Served	38%	101%	105%	122%	152%	169%	170%
Ave. Consumption/Conn./Month (m3)	13.98	11.86	14.04	18.00	19.80	21.60	21.60
Volume Sold (m3/year)	410,160	387,691	478,652	721,224	1,005,998	1,234,051	1,255,824

The revenue section shows how water revenues are computed and projected, as well as new connections, other operating revenues and non-revenue income. Inputs required in this section are the rate increase for new connection fees and the percentage of other operational revenues as against total operating revenues. This section is shown in the Tariff Model as in Table 7-2.

Table 7-2 Revenues Section

	2007 Actual	2008	2009 Projected	2010	2011	2012	2013
REVENUES							
Water Tariff							
Effective Proposed Tariff (P/m3)	7.02	7.02	8.45	8.45	8.45	8.45	8.45
Tariff Rate Increases		0%	20%	0%	0%	0%	0%
Water Revenues							
Total Proposed Water Revenues (Pesos)	2,877,983	2,720,326	4,045,827	6,096,181	8,503,250	10,430,878	10,614,913
New Connection Fees							
Connection Fee per Unit (Pesos)	1,500	1,500	1,590	1,670	1,736	1,806	1,878
Rate Increase (%)		0%	6%	5%	4%	4%	4%
Total Connection Fees (Pesos)	97,378	156,000	184,440	831,411	1,553,971	951,620	157,749
Other Operating Revenues							
% of Total Operating Revenues	16%	16%	16%	16%	16%	16%	16%
Total Operating Revenues (Pesos)	587,279	448,429	666,929	1,004,917	1,401,708	1,719,465	1,749,802
Non-Operating Income							
Interest Rate on Time Deposit		5%	5%	5%	5%	5%	5%
Short-Term Deposit Balance, Previous Year		361,013	938,481	74,334	12,722	93,195	30,583
Interest Income on Time Deposit	30,480	17,329	45,047	3,568	611	4,473	1,468

7.2 OPEX Sheet

This sheet computes the projected operating expenses for the Income Statement. Details of computations follow.

1 Personnel

Personnel cost computation starts with the personnel cost per employee per year. This is multiplied by the escalation factor declared in the Assumptions sheet to get the current unit personnel cost. This is then multiplied by the number of employees declared in the Highlights sheet to get the total personnel cost for the year. This section of the OPEX sheet also shows the employees per 1000 connections ratio and the connections per employee ratio that can be used to benchmark the water utility's performance with that of the previous year or with the performance of similar water utilities. This section in the OPEX sheet is shown below.

	2007 Actual	2008	2009	2010 Projected	2011	2012	2013
PERSONNEL							
Number of Employees	11	11	13	15	17	19	21
Employees / 1000 Connections	4.2	4.0	4.6	4.5	4.0	4.0	4.3
Connections/employee	238	248	219	223	249	251	231
Escalation Factor for Personnel	-2%	5%	5%	5%	5%	5%	5%
Cost / Employee / Year	177,506	186,382	195,701	205,486	215,760	226,548	237,875
Personnel Cost	1,952,568	2,050,197	2,544,108	3,082,285	3,667,919	4,304,410	4,995,381

2 Management Fees

If the water utility has an existing management contract, or plans to enter into one during the next five years, or plans to terminate its contract within the next five years, this is the section where these are to be reflected. This expense account is computed by multiplying the amount of fees of the previous year with the declared annual rate increase in the Assumptions sheet. If there are no management fees yet, then the initial amount of the fees may be inputted in the Management Fees line. The amount for the succeeding years will be determined by the annual rate increase. This section in the OPEX sheet is shown below.

	2007 Actual	2008	2009	2010 Projected	2011	2012	2013
MANAGEMENT FEES							
Annual Rate Increase	0%	0%	0%	0%	0%	0%	0%
Management Fees	-	180,000	180,000	180,000	180,000	180,000	180,000

3 Power

Power cost is projected by first calculating the historical unit power cost per cubic meter produced. Then the escalation factor (as declared in the Assumptions sheet) is applied to it to get the current power cost per m3 produced. Then this current unit cost is multiplied by the projected volume to be produced calculated in the Supply and Demand sheet. If the water utility only pumps a portion of its production, the percentage pumped will be inputted to arrive at the volume pumped. This section in the OPEX sheet is shown below.

	2007 Actual	2008	2009	2010 Projected	2011	2012	2013
POWER							
Escalation Factor for Power	159%	0%	6%	5%	4%	4%	4%
Total Volume Produced		461,537	563,120	838,633	1,143,180	1,402,331	1,427,073
% Volume Pumped		100%	100%	100%	100%	100%	100%
Volume Pumped, m3/yr		461,537	563,120	838,633	1,143,180	1,402,331	1,427,073
Power Cost (Peso / m3 produced)	0.06	0.06	0.06	0.06	0.07	0.07	0.07
Power Cost, Total (Pesos)	27,160	26,894	34,782	54,390	77,108	98,371	104,111

4 Chemicals

Chemical cost is computed like power cost. The current chemical cost is multiplied by the projected volume to be produced to get the total Chemical cost for the year. This section in the OPEX sheet is shown below.

	2007 Actual	2008	2009	2010 Projected	2011	2012	2013
CHEMICALS							
Escalation Factor for Chemicals	12%	1.00	1.06	1.11	1.16	1.20	1.25
Chemical Cost (Peso / m3 produced)	0.074	0.07	0.05	0.05	0.05	0.05	0.05
Chemical Cost Factor		0.07	0.05	0.06	0.06	0.06	0.06
Chemical Cost, Total (Pesos)	34,692	34,354	29,845	46,670	66,163	84,408	89,333

5 Bulk Water Purchases

This account applies to water utilities that purchase bulk water to augment its own production to be able to serve its production requirements. This is calculated by multiplying the volume to be purchased (determined in the Supply and Demand sheet) by the escalated cost of bulk water per m3. The escalation factor is declared in the Assumptions sheet. This section in the OPEX sheet is shown below.

	2007 Actual	2008	2009	2010 Projected	2011	2012	2013
BULK WATER PURCHASES							
Escalation Factor for Bulk Water Purchases	0%	0%	0%	0%	0%	0%	0%
Cost/m3 purchased	5.00	5.00	5.00	5.00	5.00	5.00	5.00
Bulk Water Purchases	-	2,500,000	2,500,000	2,500,000	2,500,000	2,500,000	2,500,000

6 Repairs and Maintenance

This account is calculated by multiplying the net book value of assets by the declared maintenance cost as a percentage of net assets in the Assumptions sheet. It is then inflated in the Income Statement part of the Reports sheet. This section in the OPEX sheet is shown below.

	2007 Actual	2008	2009	2010 Projected	2011	2012	2013
REPAIRS AND MAINTENANCE							
Maintenance of Net Assets (%)	1%	1%	1%	1%	1%	1%	1%
Net Assets Allocated	7,134,495	6,720,690	6,447,536	11,190,174	19,005,566	30,864,776	33,546,565
Maintenance Expenses (Pesos)	39,433	67,207	64,475	111,902	190,056	308,648	335,466

7 Bad Debts

Bad debts expense is calculated by multiplying water revenues by the bad debts percentage declared in the Assumptions sheet. This section in the OPEX sheet is shown below.

	2007 Actual	2008	2009	2010 Projected	2011	2012	2013
BAD DEBTS							
% of Water Revenues	2%	1%	1%	1%	1%	1%	1%
Bad Debts (Pesos)	50,000	27,203	40,458	60,962	85,033	104,309	106,149

8 Annual Water Charge

This is computed by multiplying the number of deep wells by the water charge per well as declared in the Assumptions sheet. This section in the OPEX sheet is shown below.

	2007 Actual	2008	2009	2010 Projected	2011	2012	2013
ANNUAL WATER CHARGE							
Number of Deepwells	1	1	1	1	1	1	1
Water Charge per Well	947	947	947	947	947	947	947
Annual Water Charge (Pesos)	947	947	947	947	947	947	947

9 Supervision and Regulation Fee

This fee is computed as 0.5% of the higher of Property and Equipment in Service and Paid-up Capital. This section in the OPEX sheet is shown below.

	2007 Actual	2008	2009	2010 Projected	2011	2012	2013
SUPERVISION AND REGULATION FEE							
Property and Equipment in Service		7,050,497	6,777,342	11,519,980	19,335,372	31,194,582	33,876,371
Paid-Up Capital		3,343,505	3,343,505	3,343,505	3,343,505	3,343,505	3,343,505
Basis of Fee		7,050,497	6,777,342	11,519,980	19,335,372	31,194,582	33,876,371
Rate		0.5%	0.5%	0.5%	0.5%	0.5%	0.5%
Supervision and Regulation Fee (Pesos)	43,723	35,252	33,887	57,600	96,677	155,973	169,382

10 General and Administrative Expenses

This expense account is projected by multiplying total personnel cost and management fees by the percentage declared in the Assumptions sheet. Should there be recurring expenses in the 5-year Performance Improvement Plan, these are included here. This section in the OPEX sheet is shown below.

	2007 Actual	2008	2009	2010 Projected	2011	2012	2013
GENERAL & ADMINISTRATIVE EXPENSES							
% of Personnel Cost Management Fees	34%	20%	20%	20%	20%	20%	20%
General and Administrative Expenses (Pesos)	671,400	890,039	518,822	626,457	743,584	870,882	999,076
PIP - Non-CAPEX Portion		480,000	10,000	10,000	10,000	10,000	-

11 Depreciation

Depreciation is projected by multiplying Property and Equipment (excluding Land) by the aggregate average depreciation rate as at the opening year. This section in the OPEX sheet is shown below.

	2007 Actual	2008	2009	2010 Projected	2011	2012	2013
DEPRECIATION							
Average Depreciation Rate	2.97%	3%	3%	3%	3%	3%	3%
Depreciation (Pesos)	420,165	413,805	418,155	577,767	837,349	1,230,026	1,351,010

7.3 Borrowings Sheet

This sheet contains a summary of all the loans of the water utility. It is followed by details on existing loans and new loans that may be obtained. It also contains an input portion at the bottom for the terms of the new loan. The Borrowings Sheet is shown in Table 7-3 below, with some columns hidden to increase the font size to be readable.

Input these data from the following source documents needed for each loan account:

Data to be Inputted	Source Document
<u>Existing Loans</u>	
Loan number	Loan agreement
Annual principal amortization	Amortization schedule
Interest payment	Amortization schedule
Arrears in principal and interest	Latest statement of account
<u>New Loans</u>	
Loan number	Investment Plan
Loan disbursements	Investment Plan
Loan terms	Loan agreement
Principal repayment	Amortization schedule

Interest payment

Amortization schedule

The beginning balance for Loans Payable and Interest Payable from the Balance Sheet of the last historical year inputted in the Opening sheet are all picked up from the Borrowings sheet. These are all lumped under the “Outstanding Loan 1” section. If the water utility has more than one outstanding loan account, distribute the Loans Payable and Interest Payable to the appropriate Outstanding Loan sections.

Table 7-3 Borrowings Sheet

	2007 Actual	2008 Year 0	2009 Year 1	2010 Year 2	2011 Year 3	2012 Year 4	2013 Year 5
All Loans Summary							
Opening Balance	2,100,900	2,100,900	400,667	4,167,334	10,100,668	19,034,001	18,467,335
Additions	-	-	3,800,000	6,600,000	10,700,000	1,200,000	-
Amortization	-	1,700,233	33,333	666,666	1,766,666	1,766,666	1,966,666
Loan Balance, End	2,100,900	400,667	4,167,334	10,100,668	19,034,001	18,467,335	16,500,669
Interest Payable, Beginning	-	1,398,272	-	-	-	-	-
Interest Expense	-	-	418,000	1,074,333	2,060,667	2,002,000	1,789,333
Interest Payment	-	1,398,272	418,000	1,074,333	2,060,667	2,002,000	1,789,333
Interest Payable, End	1,398,272	-	-	-	-	-	-
Outstanding Loans							
Opening Balance	2,100,900	2,100,900	400,667	367,334	334,001	300,668	267,335
Additions	-	-	-	-	-	-	-
Amortization	-	1,700,233	33,333	33,333	33,333	33,333	33,333
Loan Balance, End	2,100,900	400,667	367,334	334,001	300,668	267,335	234,002
Interest Payable, Beginning	-	1,398,272	-	-	-	-	-
Interest Expense	-	-	-	-	-	-	-
Interest Payment	-	1,398,272	-	-	-	-	-
Interest Payable, End	1,398,272	-	-	-	-	-	-
New Loan 1							
Opening Balance	-	-	-	3,800,000	3,166,667	2,533,333	1,900,000
Additions	-	-	3,800,000	-	-	-	-
Amortization	-	-	-	633,333	633,333	633,333	633,333
Loan Balance, End	-	-	3,800,000	3,166,667	2,533,333	1,900,000	1,266,667
Interest Payable, Beginning	-	-	-	-	-	-	-
Interest Expense	-	-	418,000	348,333	278,667	209,000	139,333
Interest Payment	-	-	418,000	348,333	278,667	209,000	139,333
Interest Payable, End	-	-	-	-	-	-	-
New Loan Terms							
	New Loan 1	New Loan 2	New Loan 3	New Loan 4	New Loan 5		
Interest Rates	11.00%	11.00%	11.00%	11.00%	11.00%		
Maturity in Years	7	7	7	7	7		
Grace Period	1	1	1	1	1		
First Disbursement Year	2009	2010	2100	2012			
First Principal Repayment Year	2010	2011	2101	2013	1		
Total Loan	3,800,000	6,600,000	10,700,000	1,200,000	-		
Annual Amortization	633,333	1,100,000	1,783,333	200,000	-		

7.4 Movements Sheet

This sheet contains the movements of each Balance Sheet account to assist the user in analyzing them. There are very few inputs required in this sheet. These are in the accounts with yellow cells, as follows:

- Disposal of assets – value of assets disposed
- Other Current Liabilities – additions and payments
- Other Liabilities – increase or decrease
- Capital Reserves – increase or decrease

7.5 Coop Sheet

This sheet is **for water cooperatives only**. This sheet calculates the capital build-up made by members. This is included in the financial projections as they can be one possible source of financing of the cooperative’s investments.

Data required to be inputted in this sheet (found in yellow cells) are the following:

- **% of new connections becoming members.** Not all new connection owners are necessarily Cooperative members. This cell accepts the possible percentage of these new

connection owners who will become Cooperative members and who will be paying for their shares.

- **Par value of share.** This is the total amount per share to be paid by the new connection owners who become members.
- **% initial payment.** This is the agreed percentage of the total share value that the new member has to pay up front.
- **Monthly payment.** This is the monthly installment for the balance of the share after deducting the initial payment.
- **Payment period.** This is the number of monthly installments to be made to fully pay the balance of the share of the new member.
- **Number of members with fully paid shares.** These are assumptions required for the last historical year (actual) and for the first two projection years (estimates)
- **Monthly capital build-up.** This is the amount to be paid monthly by a member for its capital build-up.

7.6 Consumption Sheet

This sheet calculates the equivalent volume (EV) sold which is used in the Tariff Computation sheet to get the cost per equivalent volume. The EV is the volume billed where the meter size factor has been applied. More detailed discussion on the EV is given below.

Data required to be inputted in this sheet are the following:

1 Number of Connections

Distribute the number of connections by consumer category and meter size. See format in Table 7-4 below. Use the latest historical data.

Table 7-4 Connections and Consumption Input

Consumer Category	Meter Size	Number of Connections	Ave. Monthly Consumption-m ³
Public Taps	1/2"		
	3/4"		
	1"		
	1 1/2"		
	2"		
	3"		
	4"		
Residential / Institutional	1/2"		
	3/4"		
	1"		
	1 1/2"		
	2"		
	3"		
	4"		
Commercial / Industrial	1/2"		
	3/4"		
	1"		
	1 1/2"		
	2"		
	3"		
	4"		

2 Average Monthly Consumption

Assign the average monthly consumption for each of the consumer category by meter size. See the format in Table 7-4. Use the latest historical data. However, if average monthly consumption will change because of system improvements, use the projected average monthly consumption as a basis in distributing them into consumer category and meter size.

3 Additional Connection Meter Size and Meter Size Factor

This portion is only for commercial and industrial connections. This is used when the water utility has connection sizes not listed in the Model. The meter size and meter size factor will thus have to be added, in addition to their corresponding number of connections and average monthly consumption as discussed above.

Equivalent Volume

These are the steps done by the Tariff Model in computing the EV.

- a. Compute total annual consumption.

This step spreads the annual consumption and connections in to the proper consumer categories. It is done for all the consumer categories.

$$\begin{aligned} &= \text{Number of connections} \\ &X \text{ Average monthly consumption in cu. m.} \\ &X 12 \text{ months} \end{aligned}$$

- b. Compute the equivalent consumption per quantity block for all consumer categories.

$$\begin{aligned} &= \text{Consumption per month in cu. m.} \\ &X \text{ Number of connections} \\ &X \text{ Meter size factor} \\ &X 12 \text{ months} \end{aligned}$$

The meter size factors are based on industry standard, and are already provided by the Tariff Model. The meter size factor for commercial and industrial consumers are twice that of the residential consumers. This factor adds a premium on the consumption for the additional cost of providing for a bigger meter and for the convenience given to the consumer in meeting its water needs. This is why the result of these computations is called "equivalent" consumption.

- c. Compute the EV.

$$\begin{aligned} &= \text{Equivalent consumption, annual} \\ &X \text{ Increment factor} \end{aligned}$$

- d. Compute the cost per EV

$$\begin{aligned} &= \text{Desired water sales (from Evaluation sheet)} \\ &/ \text{ Total EV} \end{aligned}$$

This cost/EV is used in calculating the water tariff per consumption category.

7.7 Tariff Computation Sheet

This sheet calculates the proposed tariff based on the revenue requirements calculated in the Evaluation sheet. Results of calculations are summarized in the Tariff Proposal sheet discussed in Section 5 and the sample table shown in Table 5-6. There are no manual inputs in this sheet.

These are the major activities in this sheet:

1 Computation of Water Revenues

This section computes the tariff for each consumer category. The resulting tariffs are rounded to the nearest peso to simplify implementation. It then proceeds to compute the total water revenues to be generated by the tariff rates. The total water revenues generated by the resulting water tariffs should be as close as possible to the revenue requirements computed in the Evaluation sheet. The increment factor may be adjusted in the Computation sheet to narrow down this gap.

These are the steps done by the Tariff Model to get the total water revenues:

- a. Compute the tariff rate per consumer category.

$$\begin{aligned} &= \text{Cost/EV} \\ &\text{X Increment factor for the quantity block} \end{aligned}$$

- b. Compute the water revenues per consumer category, per meter size and quantity block.

$$\begin{aligned} &= \text{Tariff rate (computed in (a) above)} \\ &\text{X Average monthly consumption for the quantity block, meter size and} \\ &\quad \text{consumer category} \\ &\text{X 12 months} \end{aligned}$$

2 Affordability Test

Now that the water tariffs have been determined, the Tariff Model proceeds to evaluate the affordability of the minimum charge for residential consumers to a low-income household. Based on industry standards, a water bill for a lifeline consumption should not exceed 5% of the household income of a low-income household in the service area of the water utility. Lifeline consumption is the least volume of water used by a household for basic needs, like drinking, cooking, bathing and washing. In the absence of a study determining this lifeline consumption for the water utility, a consumption of ten cu. m. may be used.

This is done in the Tariff Model by comparing the minimum charge for residential consumers against 5% of the household income of a low-income household. Should the result be excessive, the user may adjust the increment factor in the Consumption sheet until the result becomes acceptable.

7.8 Disallowances Sheet

The Disallowances Sheet is used when the water utility is applying for a subsequent set of tariffs for the next five years. The water utility's performance for the last five years is evaluated. Disallowances or allowances during the past are forwarded to the projected five years, influencing the revenue requirements, and subsequently the tariffs for the next five years.

This sheet covers only disallowances related to power and chemicals, and the effect on these expenses of not attaining the target non-revenue water. Adjustments related to capital investments are dealt with in the CPX Inv Constant sheet. Adjustments related to the result of the audit of operating expenses, including non-prudent expenses, are dealt with by inputting the allowance / disallowance in the Evaluation sheet.

Input these data in this sheet:

	Year 1	Year 2	Year 3	Year 4	Year 5
Target NRW%					
Projected Volume Produced					
Projected Volume to be Sold					
Target Power unit cost					
Target Chemicals unit cost					

These data come from the projections for the last tariff application. The volume produced and sold should be annual, in cubic meters. The unit cost for power and chemicals should be in peso/cubic meter produced.

Three major activities are done in this sheet.

1 Non-Revenue Water

This section determines the allowance/disallowance resulting from the water utility's not attaining the target NRW.

The NRW attained by the water utility is compared with the target NRW. For a variance of plus/minus 10% of the target, the water utility is not penalized. Disallowance / allowance starts after considering this $\pm 10\%$ flexibility.

If a water utility attained a higher NRW than targeted, it is presumed that the water utility produced a higher volume to be able to meet its production requirements, and consequently, incurred higher power and chemical costs.

These are the steps done by the Tariff Model to reflect the disallowance/allowance arising from non-attainment of the non-revenue water target.

- a. Compute the adjusted target NRW %.
 - 1) Compute the variance between the target NRW and the NRW attained.
 - 2) Compute 10% of the target NRW%.
 - 3) The penalty is the variance computed in (1) minus the 10% of NRW target computed in (2). If the variance is less than the 10% NRW, there is no penalty.
 - 4) Adjusted target NRW
 = Target NRW%
 + Penalty % computed in (3) above
- b. Compute the should-be production volume based on the target NRW as adjusted, based on the actual volume sold.
 = Actual volume sold
 / (1 – adjusted target NRW) as computed in (a) above
- c. Compute the excess production.

- = Should-be production volume computed in (b) above
- Actual production volume

- d. Compute the allowance (if the result is positive) or disallowance (if the result is negative) on power and chemical costs incurred in relation to the excess production.
 - = Target unit cost of power or chemicals
 - X Excess production computed in (c) above

The allowance / disallowance based on the above case go to adjustments on the revenue requirements for the next tariff period.

2 Significant Variances in Unit Cost of Power and Chemicals

This section of the Disallowances sheet computes the allowance / disallowance arising from significant variances of unit costs of actual power and chemical costs against the projection. The allowance / disallowance based on the above case go to adjustments on the operating expenses for the year affected. They affect the allowable operating expenses that become part of the revenue requirements of the actual years.

This is computed in the Tariff Model as follows:

- a. Compute the difference between the projected and actual unit cost per volume produced for either power or chemicals.
- b. The allowance/disallowance
 - = Difference in unit cost
 - X Should-be production volume computed in (1b) under the Non-Revenue Water section above

3 Tariff Adjustment

This section of the Disallowance sheet computes the adjustment to the revenue requirements arising from the difference between the approved average tariff for the five-year period and the actual average tariff recomputed based on actual implementation. This is illustrated below.

	2000 Actual	2001 Actual	2002 Actual	2003 Actual	2004 Year 0	ALLOWED / (DISALLOWED)
TARIFF ADJUSTMENT						
Should Have Been Average Tariff	6.30	6.30	6.30	6.30	6.30	
Actual Average Tariff Billed	6.67	6.53	6.40	6.52	6.52	
Under / (Over) billed	(0.37)	(0.23)	(0.09)	(0.21)	(0.22)	
Actual Volume Sold, m3	149,801	157,685	165,984	174,720	174,720	
Tariff Adjustment	(54,917)	(36,118)	(15,658)	(37,420)	(37,609)	(181,721)

The total tariff adjustment for the past five years are deducted or added to the calculated revenue requirements in the Evaluation sheet to get the tariff that should be implemented for the next five years.

8 CPX Sheets

The CPX sheets contain information related to property and equipment. These sheets aid in the computation of the allowable depreciation of property and equipment in service entitled to return. This allowable depreciation becomes part of the revenue requirements in computing the return on investments.

8.1 Input Sheets

The following sheets are where data related to assets and capital investments are entered. The depreciation table can also be considered an input sheet since it is referred to by the other sheets when calculating depreciation.

8.1.1 CPX Depn Table Sheet

This sheet contains the valid useful life and corresponding depreciation rates for specific types of assets based on NWRB's Board Resolution. Assets that cannot be classified in NWRB's table can be added here together with their corresponding useful lives and depreciation rates.

8.1.2 CPX Inv Constant Sheet

This sheet contains groupings of all assets of the utility based on NWRB's recommended groupings found in the CPX Depn Table sheet, as well as distribution of the costs of these assets by acquisition year.

There are two sets of assets that are entered in this sheet:

1. Existing assets

All assets acquired on or before the declared "earliest historical year" are entered under this "earliest historical year". Assets acquired thereafter should be entered under the corresponding year.

2. Capital investments for the projected tariff period

This part consists of the capital investments of the water utility for the next five years which are stated in *constant prices*. Data to be inputted in this sheet come from the list of new investments required to be submitted by the applicant water utility, as enumerated in Section 4.

Steps to enter the data are as follows:

- a. Type the name of the asset based on the asset descriptions in the CPX Depn Table sheet. See Section 8.1.1 for assets not yet listed in the CPX Depn Table sheet.
Make one entry for each acquisition year.
- b. Copy the depreciation rate for that asset from the CPX Depn Table sheet
- c. Input the amount of the asset or investment under the appropriate year that the asset was acquired or the investment is to be made.
- d. Check that the total assets/investments per year entered in this sheet tallies with those in the water utility's balance sheet (for existing assets) and the capital investment plan.

For example, if a submersible pump was acquired in 2005, and another in 2006, enter "Submersible Pump" in one line and write "2005" for its acquisition year. In another line, enter another "Submersible Pump" in and write "2006" for its acquisition year.

8.1.3 CPX Begin Sheet

CPX Begin sheet screens assets that are entitled to return at the beginning of the old tariff period so that their annual depreciation, accumulated depreciation and net book value can be computed. The accumulated depreciation of each asset line becomes the beginning balance of the asset in the CPX ROI Acc Depn sheet.

CPX Begin sheet picks up from the CPX Inv Constant sheet all the assets of the water utility as of the earliest historical year for initial tariff applications with NWRB, or the first year of the old tariff period (or Year – 4) for subsequent tariff applications. Each of the assets is described by their useful life, acquisition date and amount. Their total should tally with the total assets in the Balance Sheet for the earliest historical year.

The classification of assets by funding source is entered in this sheet. This classification should determine if they are entitled to return or not.

In general, all assets are entitled to return, except:

- a. Assets not in service, such as those that have outlived their useful life and are no longer used in water operations
- b. Assets donated or funded by grants

Data to be inputted in this sheet come from the itemized list of assets entitled to return required to be submitted by the applicant water utility, as enumerated in Section 4. It is recommended that this itemized list be in the format as shown in Table 8-1.

8.1.4 CPX Inv No Return Constant Sheet

This sheet contains capital investments that are not entitled to return. These are required to be inputted in this sheet in their acquisition costs.

The cost of these assets are deducted from those in the CPX Begin sheet, then converted to current costs in the CPX Inv No Return Current sheet to arrive at the assets entitled to return, appearing in the CPX ROI Inv sheet.

Having no negative amounts in the ROI Inv sheet is an indication that there is no error in placing an amount in the wrong line or year.

8.2 Computation Sheets

Computation sheets contain data that need to be encoded, in combination with cells that are purely formulas. There are no manual inputs required in these sheets. All the computations are done through formulas in the Model.

8.2.1 CPX Inv Current Sheet

No inputs are required in this sheet. This sheet converts the cost of the capital investments from constant price to current price by applying the corresponding inflation rates. This is done as follows:

- = Contents of CPX Inv Constant
- X Inflation

8.2.2 CPX Inv No Return Current Sheet

No inputs are required in this sheet. This sheet converts the cost of assets from the CPX Inv No Return sheet to current prices as follows:

- = Contents of CPX Inv No Return Constant
- X Inflation

8.2.3 CPX ROI Inv Sheet

No inputs are required in this sheet. This sheet contains capital investments entitled to return. The Tariff Model computes this as follows:

- = Contents of CPX Inv Current
- Contents of CPX Inv No Return Current

8.2.4 CPX ROI Cum. Assets Sheet

No inputs are required in this sheet. This sheet computes the accumulated balance of assets entitled to return by adding investments entitled to return for the year to the previous year's balance, as follows:

- = Balance of the asset in the previous year
- + Amount of the asset in the CPX ROI Inv sheet

8.2.5 CPX ROI Depn Sheet

No inputs are required in this sheet. This sheet computes the depreciation of each asset line. This is done as follows:

- = Cost of the asset in the CPX ROI Total Assets sheet
- X Depreciation rate of the asset from the CPX Depn Table sheet

8.2.6 CPX ROI Accum Depn Sheet

No inputs are required in this sheet. This sheet computes the accumulated depreciation of each asset line. This is done as follows:

- = Previous year's accumulated depreciation
- + Depreciation computed in the CPX ROI Depn sheet

8.2.7 CPX ROI NBV Sheet

No inputs are required in this sheet. This sheet computes the net book value of each asset line. This is done as follows:

- = Cost of the asset from the CPX ROI Acc. Assets sheet
- Accumulated depreciation of the asset from the CPX ROI Acc Depn sheet

Table 8-1 CPX Begin Sheet Inputs

Description	Useful Life In Years	Acquisition Date	2004 Balance Sheet	Donations/ Grant	Other Sources	Not Entitled	Entitled	Annual Depreciation	Accumulated Depreciation	Net Book Value
Land			323,326		323,326.10	-	323,326.10			323,326
DEEPWELLS AND PUMPHOUSES										
Spring box with filtration plant			-		-	-	-	-	-	-
Production Flowmeters			-		-	-	-	-	-	-
Production Flowmeters			-		-	-	-	-	-	-
Concrete reservoir	40	2004	395,430		395,430.17	-	395,430.17	9,886	-	395,430
Concrete reservoir	40	2006	-		-	-	-	-	-	-
Concrete reservoir	40	2007	-		-	-	-	-	-	-
Asbestos and plastic pipes	30	2004	9,807,568		9,807,568.38	-	9,807,568.38	326,919	-	9,807,568
Asbestos and plastic pipes	30	2005	-		-	-	-	-	-	-
Asbestos and plastic pipes	30	2006	-		-	-	-	-	-	-
Asbestos and plastic pipes	30	2007	-		-	-	-	-	-	-
Asbestos and plastic pipes	30	2009	-		-	-	-	-	-	-
Asbestos and plastic pipes	30	2010	-		-	-	-	-	-	-
Asbestos and plastic pipes	30	2011	-		-	-	-	-	-	-
Asbestos and plastic pipes	30	2012	-		-	-	-	-	-	-
Building	40	2004	342,647		342,646.88	-	342,646.88	8,566	-	342,647
Building	40	2005	-		-	-	-	-	-	-
Building	40	2006	-		-	-	-	-	-	-
Building	40	2007	-		-	-	-	-	-	-
Chlorinating equipment	10	2004	285,770		285,769.80	-	285,769.80	28,577	-	285,770
Office Furniture and Fixtures			80,071		80,070.55	-	80,070.55	-	-	80,071
Office Equipment	5	2004	46,649		46,648.60	-	46,648.60	9,330	-	46,649
Office Equipment	5	2007	-		-	-	-	-	-	-
Tools and equipment	5	2004	24,585		24,585.15	-	24,585.15	4,917	-	24,585
Computer equipment	3	2004	93,550		93,550.00	-	93,550.00	31,183	-	93,550
Computer equipment	3	2005	-		-	-	-	-	-	-
Communication Equipment	5	2004	115,745		115,744.50	-	115,744.50	23,149	-	115,745
Communication Equipment	5	2008	-		-	-	-	-	-	-
Communication Equipment	5	2009	-		-	-	-	-	-	-
Service Vehicle	5	2004	160,260		160,260.00	-	160,260.00	32,052	-	160,260
Service Vehicle	5	2010	-		-	-	-	-	-	-
Billing and Accounting System	5	2008	-		-	-	-	-	-	-
Other Fixed Assets	5	2004	9,060		9,059.98	-	9,059.98	1,812	-	9,060
TOTAL			11,684,660.11	-	11,684,660.11	-	11,684,660.11	476,391	-	11,684,660

Per Balance Sheet 11,684,660.11
 Difference -