Historicity Research Journal
Volume 2 | Issue 1 | Sept 2015

ISSN:- 2393-8900

Research Article

AN ECONOMICAL ANALYSIS OF DRINKING WATER IN PUNE MUNICIPAL CORPORATION

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Abstract:

Basic water supply in developing countries usually does not have a pricing policy for urban basic amenities such as water supply, sanitation, and solid waste disposal. These are normally considered to be public goods to be supplied free of cost. Generally, a token cost is collected which in no way reflects the actual cost of provision. Municipal authorities/state governments in developing countries are especially hard press to design, develop and finance the basic urban services. Various studies on the subject clearly highlight the need for changes in the management practices such as metering; applying appropriate user charges; reducing water losses; increasing water availability; coverage etc .to solve the water problems. This present paper attempts to review the tariff structures present in PMC, and comparative analysis of water budget. The objective of the present paper in this context is to analyze the pricing pattern of water supply.

KEY WORDS:

Economical Analysis , Drinking Water , water problems.

INTRODUCTION-

Basic water supply in developing countries usually does not have a pricing policy for urban basic amenities such as water supply, sanitation, and solid waste disposal. These are normally considered to be public goods to be supplied free of cost. Generally, a token cost is collected which in no way reflects the actual cost of provision. Municipal authorities/state governments in developing countries are especially hard press to design, develop and finance the basic urban services. This study clearly highlight the need for changes in the management practices such as metering; applying appropriate user charges; reducing water losses; increasing water availability; coverage etc. to solve the water problems. This present paper attempts to review the tariff structures present in

PMC, and comparative analysis of water budget. The objective of the present paper in this context is to analyze the pricing pattern of water supply.

For studying the pricing pattern some methodology like qualitative and quantitative techniques used in that, population projection, and some statistical techniques for estimating requirement of drinking water and water tariff. The objective of the present paper in this context is to analyze the pricing pattern of water supply. This paper consist three parts. First part explains the total water availability, bifurcation in-between Irrigation department and PMC. Statistics of water supply and pricing pattern of water supply. Second part explains total revenue of PMC and comparative analysis of PMC revenue (Revenue Income and Expenditure). Third part consist total budget of water supply and comparative analysis of water supply budget, brief information of JNNURM Projects regarding water supply.

For the water supply, meter system was introduced from 01.01.1980. At that time fixed rates were there for usage of water both for domestic and non-domestic. In the metering system water was supplied through the rates as that of the domestic rates. The problem with this system was water is supplied with uniform rates without considering the usages.

To differentiate in the water usage and to get additional revenue from the water supply, from 01/01/1982 the rates for water supply was revised and different rates for Non-Domestic water usage were introduced. In this system there were separate rates for Domestic usage and Non-Domestic usage, the advantage was that, the revenue from the water gets increased.

It is very essential to measures the demand and supply of drinking water in Pune Municipal Corporations in Maharashtra. The demand for drinking water is continuously increasing due to growth of population, industrialization and commercial units. Drinking water is not provided on a sustainable basis in the municipal corporations.

In Pune Municipal Corporation, for the year of 2010-11,

Sr. No.	**Data**	**Values**	**Values in %**
A.Coverage of Water supply connections	Total No. of Houses in PMC	995731	
	No. of Houses with direct connections in PMC	937938	94.19%
B. Per Capita Water Supply	194 LPCD		
C. Extent of water metering	Total no. of connections	119969	
	Metered =	36020	
	Non- Metered =	83949	30.02%
D.NRW-Non Revenue Water	Total water put into transmission system =	1123 MLD	
	Sold water =	**786 MLD**	
	NRW =	**337 MLD**	**30 % (Water loss)**
E. Cost recovery in water supply system	Total Expenditure	176.41 Crore	
	Revenue =	124.68 Crore	
	Deficient =	51.73 Crore	70.67% Recovery
F. Efficiency in collection of Water charges	a. Billed amount = b. Collected amount =	137.11 Crore 124.68Crore	90.93 % Bills are collected

At present PMC required supplying 1318 MLD of water from 9 water (WTP's) and groundwater abstraction from 399 dug wells and 4820 bore wells. Per capita availability of water is 194 LPCD which is more than the suggested UDPFI standard guide lines. In spite of this there is no equitable distribution of water supply which varies from 138 LPCD to 238 LPCD. Moreover, the continuity of water supply also ranges from 2 hours to 20 hours per day. Adding to this about 6 % of the city's population is not covered by piped water supply. (1)At present the water is supplied through the Khadakwasala Dam through Kadakwasala – Parvati pipeline and the Mutha right Canal. 1/04/2000 for domestic use water charges were introduced. This user charges were linked with the property and according to the property type water tax was collected. The main sources of revenue for PMC for water supply services are Water Tax, Water Charges, and Water benefit Tax. For non- metered connections water tax is levied as a component of property tax. Water charges are recovered based on the meter readings. Water benefit tax is levied on all properties since 1991-92. At present it is 3% of Annual Retable Value.

Total Water budget of Irrigation Department:

Whole Pune city gets water from Kadakwasala Dam and it is comes under the Irrigation Department. So irrigation department provide water for drinking purpose and for irrigation purpose.

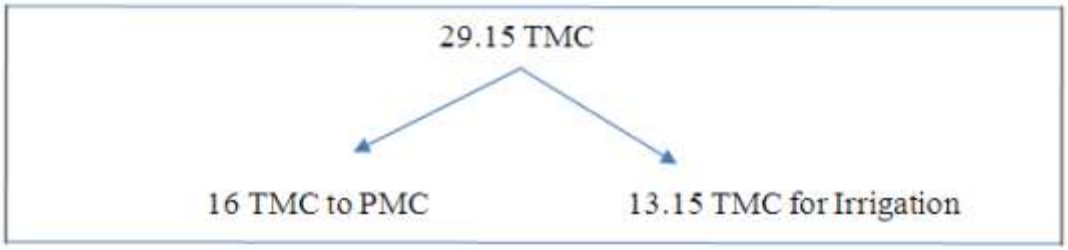
There are total 3 dams comes under Irrigation Dept. Known as 'Khadakwasala Sanyukta Prakalp'

'Khadakwasala Sanyukta Prakalp' → Panshet, Varasgoan, Temghar Total water = 29.15 TMC

Total water storage in each Dam

Sr. No.	Name of the Dam	Total amount of water (TMC)	Useful water	Dead water
1.	Khadakwasala	3.03	1.97	1.06
2.	Panshet	10.97	10.65	0.32
3.	Varasgoan	13.25	12.82	0.43
4.	Temghar	3.81	3.71	0.10
	Total =	**31.06**	**29.15**	**1.91**

The total useful amount of water is = 29.15 TMC. In that 16 TMC water is discharge for 13.15 TMC water is for Irrigation purpose.



In the rate of this 16 TMC water 85% water is supplied by Domestic rate (Rs. 2.10 for per 10,000 Liter) and 15 % water is supplied by Industrial rate for domestic use (Rs. 32 for per 10,000 Liter). (2)

So 85 % means 13.6 TMC Supplied by domestic rate and 2.4 TMC is supplied by

Industrial rate

1.Domestic rate is Rs. 2.10 for 10,000 Liter.
13.6 TMC sold by this rate. It cost is = Rs. 80872913.8/-(3) & (4)

2. Industrial rate is Rs. 32 for 10,000 Liter.
2.4 TMC sold by above rate. It cost is = Rs. 217473382/-(3) & (4)

Total water which is supplied by Irrigation Department = 16 TMC. And is cost is 29 Crore 83 Lakhs 46 Thousand means around 30 Crores.

Actual use of water is,786 MLD water is supplied to Pune for 373851 population (Estimated population for 2015 year) so if 786 MLD water is supplied to Pune city per day then annual water requirement is 286890 MLD means 10.63 TMC. It means PMC population consumes10.63 TMC/Year.

But according to Irrigation department they give 16 TMC water and 2 TMC is NRW.

But according to above calculations,
10.63 TMC (Consumption) + 2TMC (NRW) = 12.63 TMC.

So the left water is 3.37 TMC, It means that the quantity of non - renewable water is increasing day by day and it is around 2 TMC in transmission processes and 3.37 TMC water losses in distribution system means total NRW is 5.37 TMC. And 1 TMC = 28000000000 Liters so approximately 150360000000 Liters, it is big loss of water.

Water budget of Pune Municipal Corporation.

PMC population consumes 14 TMC (4) Including Commercial, Industrial and residential area.

So PMC gets 107 Crores from taxable water charges according to budget of PMC 2013-14.(5)

90% billed amount is collected by PMC. So there is very less deficit amount in bill repayment amount.

For example,

Water Department Budget = Income-Expenditure

So here Total PMC Income is 230.05(in Crore) from (Water tax, JNNURM Scheme, Funds, Government, Contractors, etc.) and expenditure is 253.75 Crores (from Salaries, wedges, loan repayments, repairs, water expanses, Depreciation, maintenance, petrol and diesel) so the deficit amount is-23.7 Crores.(Ref. Simplified Budget of PMC, 2013-14).

PMC gets 107 crores budget the first point to be noted is that the Pune Municipal Budget does not have entries under Capital Income. Capital Incomes are usually non-recurring over the financial year and have a characteristic of being numerically huge. For a Municipal Corporation, the capital incomes are from Development charges, sale of land, lease of land, water connection charges, etc.

There is huge amount of deficit and it should manage, because of maximum utilization of revenue income is in salary and wedges of workers and repair and maintenance. Water supply is not charged according to the actual use of water and water meters are not installed, Lack of complete coverage of safe water supply on sustainable basis is an important challenge for Pune Municipal Corporations.

Water tax which paid by per house is Rs. 1000/ year this user charges which linked

with the property and according to the property type water tax was collected but this calculation is not proper to explain the relationship between water use and water tax because there is no meter connection for taking water charges (only 30 % meter connections). This tax amount is very minimum (Rs. 3/1kl) for domestic water supply and for industrial purpose it is Rs. 21/1KL and Rs. 5/KL (Ref. SLB 2010) is for Contentment Boards as considered the revenue expenditure amount but study this bifurcation of how much water is utilize by Industries and CB. But still maximum use is for domestic purpose. And each house is giving Rs.1000/year for water tax. PMC gets more than105 Crores by this water tax. So generally each person pays 0.3 paise /liter. This is very less amount.

This can be the main reason that people are not aware about saving water, apply some water conservation techniques and that's why non - renewable water is increasing and we are suffering from water scarcity. To manage all water supply system it requires around 254 Crores but PMC does not have this much amount so PMC get 167 .59 Crores under JNNURM scheme water supply and sewage management and projects. But this grant received from the central government under JNNURM is not enough to invest in water supply projects. Drinking water supply project is highly capital intensive activity. The initial cost comprises as building dam, pipeline, storage and filtering system, water distribution system, metering and bill collection system etc. Municipal corporations do not have money is to invest in water supply projects. The grants received from the central government under JNNURM are not enough.

The present reform 'User water charges ' says that, the water charges are more depend on the property, so based on the property the usage of the water vary. So it was decided in the Pune Municipal Corporation that, the water charges should be linked with the Property tax. This is for decrease the gap between Income and Expenditure. And the last part explains water tariff on ground by case study what is the condition of water tax and what is the people opinions about water tax, their suggestions and their requirement.

CONCLUSION:

1. Irrigation department gives 16 TMC water to PMC. Net water is 14 TMC but according to PMC this 14 TMC water is not sufficient for Pune city so they again use open water sources like baby canal but according to population 11 TMC water is sufficient for whole PMC area.
2. 5 TMC non - renewable water is Hugh amount and this is during storage and transmission and distribution and utilization, underground leakages, water thief, etc.
3. Water use calculation not done properly. Water meters are not covering all area that's why it is very difficult to say water charges/house.
4. It is very difficult to get record of water use by industries and commercial areas so it is affect on total water tax revenue.
5. Approximately each people pay 0.3 paise / 1 liter water this is very less amount this one of the reason that people are careless for water saving and waste Hugh water in utilization. So creating water awareness is very necessary to reduce NRW. PMC's water supply management is very poor not very effective and doesn't have each record. They are quite behind to creating awareness among people.

BIBLIOGRAPHY:

1. Census of Pune 2001.

2. Socio-Economic Survey of Pune 2008-09
3. Pune Sanitation Plan 2011.
4.GOI, 1990. Report of the Ninth Finance Commission, Ministry of Finance, Government of India.
5.GOI, 2004. Report of the Twelfth Finance Commission, Ministry of Finance, Government of India
Water and Sanitation Program (2000) The Cancellation of the Pune Water Supply and Sewerage Project, Case study 23723, December.
6. Kalbermatten J. 1999 "Should we pay for water? If so how?"
7. Krishen G. 1991- Urban India XI(1): 69–87 "pricing of water supply in Indian cities: a case study"
8. Mehta M and Satyanarayana V. 1996 "Pricing and cost recovery for urban services, a city perspective: a case"
9. study of Pune Municipal Corporation
Paper presented at the Seminar of Pricing and Cost Recovery of Urban Infrastructure and Services, 18–19 November 1996, New Delhi

REFERENCES:

1.Water supply and Sewage Department, Shivajinagar.
2.Maharashtra Water Resources Regulatory Authority, (MWRRA), Ref. No. ma ja ni pra 2011/ thokjaldar- aadesh/ (59)/ 315, Date: 30 May 2011. Parishishta Kramank 2 B
3.Conversions table for Water Calculation
4.The PMC's Environmental Status Report (ESR), 2009-10.
5.PMC Departmental Budget, Janwani, 2013-14.

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