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Research Paper Architecture

Assessment of Need for Private Sector Participation in Urban Water Supply in India

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ABSTRACT

In India, many Government officials, policy makers, academicians, water sector professionals and public have apprehensions about benefits or advantages of private sector participation in urban water supply service. The main apprehensions are that there is no difference between quality of service provided by Government water supply schemes and schemes with PPP arrangement and water tariff of PPP water supply schemes is high due to profit motive of private entities. Keeping this in view, a study was taken up with the main objective to find out whether public private partnership is useful in urban water services in India. For the study, seven numbers of water supply schemes from different parts of India were taken up as case studies. The outcome of the study is that PPP in urban water supply services is found as useful and needs to be encouraged by Government and Urban local bodies in India.

KEYWORDS KL, lpcd, MLD, PPP, PHED, WSS.

Introduction and Context

In India, there are apprehensions about benefits or advantages of private sector participation in water supply service. The apprehensions are sharp rise in tariffs, insistence on removal of community taps, no quality of service, etc. Overall, there is confusion about the advantages of private sector participation in urban water supply services. Therefore, to clear this confusion, a study has been taken up to know about performance of public private partnership projects in urban water supply services in India. The main objective of the study is to find out whether private sector participation is useful and improves performance of urban water supply services.

The Case Studies:

Seven numbers of water supply schemes have been selected for the study. Out of them, two schemes are public schemes and five schemes are schemes with private sector participation. The selection criteria of the schemes are:

i) The schemes are expected to represent overall status of public and PPP water utilities in India. For this, the schemes are to be selected from different parts in India with different levels of development. Also, sizes of the schemes are to be different to represent an overall scenario.
ii) The schemes need to cover different models of PPP arrangement.

The selected public schemes are Yadgir WSS in Karnataka and Zoo Road WSS in Guwahati City in Assam. The schemes with private sector participation are Salt Lake City Sector V WSS in Kolkota in West Bengal, Haldia WSS in West Bengal, Jamshedpur WSS in Jharkhand, 24 X 7 Pilot PPP scheme in Nagpur City in Maharashtra and KUWASIP 24 X 7 PPP Project in Gulbarga City in Karnataka. Salient features of the water supply schemes are mentioned in table 1 below:

Table 1: Salient Features of Selected Water Supply Schemes

Item	Values						
	Yadgir WSS	Zoo Road WSS	KUWASIP, Gulbarga	Nagpur 24X 7	Haldia WSS	Sector V, Salt Lake	Jamshedpur WSS
Population in 2012	75000	75000	33000	160000	170 industries, 210194 in Haldia Municipal area.	250000	650000
Source of Water	Bhima River	Brahmaputra River	2.5 MLD Bulk water from KUWSDB Network	50.83 MLD Bulk Water from NMC	Haldi River	0.9MGD Bulk water from KMC	Subranarekha river
Production Capacity	13.64 MLD	12.6 MLD	-	-	120 MLD	-	180 MLD
Actual Water Production	6.44 MLD	7.5 MLD	-	-	120 MLD	-	180 MLD
Net Per Capita Supply	68 lpcd	75 lpcd	76 lpcd	232 lpcd	55 lpcd in Municipal Area	-	163 lpcd
Number of House Connections	5794	8000	3336	16627	6438 in Municipal Area. 170 Industrial Connections	177 Industrial Connections	55904

Domestic Water Tariff	Rs. 120 per month	Rs. 18/KL up to 30 KL/month; Rs. 20/KL for 30 to 50 KL/ month; Rs. 22/KL above 50 KL	Rs. 6/KL (for 0 to 8KL); Rs. 8/KL (for 8 to 15 KL); Rs. 10/KL (for 15 to 25 KL); Rs. 12/KL (above 25KL)	Rs. 5/KL up to 20KL; Rs. 8/KL from 20 to 30 KL; Rs. 11/KL from 30 to 80 KL ; Rs. 15/KL above 80 KL Institutional for Govt. Offices: Rs. 20/KL	Commercial: Rs. 13.82/KL Domestic: Rs. 5.62/KL Municipality: Rs. 3.38/KL	Industrial: Rs. 25/KL	Rs. 5/KL up to 30 KL, Rs. 6/KL for 30 to 50 KL, Rs. 8/KL for 50 KL to 70KL, Rs. 10/KL for above 70 KL
Owner of Utility	Yadgir Municipal Council	AUWS & DB	Gulbarga Municipal Corporation	Nagpur Municipal Corporation	Haldia Development Authority	Naba Diganta Industrial Township Authority	TISCO
Responsible O & M Agency	Yadgir Municipal Council	AUWS & DB	Private Operator	Private Operator	Private Operator	Private Operator	Private Operator
Type of Private Sector Participation	Owned and maintained by Public Entity	Owned and maintained by Public Entity	Management Contract	Management Contract	Concession	Concession	Owned and maintained by Private Entity

Data Collction, Analysis of Data and Findings:
Primary and secondary data were collected from the selected water supply schemes in the month of March 2013 for year 2011-12. With the help of collected data, performance of the water supply scheme has been analysed by comparing major service level indicators. These indicators are coverage of water supply, per capita supply, extent of metering, non revenue water, continuity of water supply, quality of water supply, efficiency in redressel of consumer complaints, O & M cost recovery and efficiency in collection of water charges. Observed values of the indicators of the selected urban water supply schemes are shown in table 2 below.

Table 2: Comparison of Service Level Indicators of Selected Water Supply Schemes

Sl. No.	Performance Parameter	Bench Mark Value	Public Utility		PPP Utility				
			Yadgir WSS	Zoo Road WSS	KUWASIP, Gulbarga	Nagpur 24X 7	Haldia WSS	Sector V, Salt Lake	Jamshedpur WSS
1	Coverage of Water Supply Connections	100%	100%	100%	100%	100%	46%	100%	88%
2	Per Capita Supply of Water	135 lpcd	68	75	73	232	55	Industrial Water supply	163
3	Extent of Metering of Water Connections	100%	0%	70%	100%	94%	100%	100%	36%
4	Non Revenue Water	20%	20%	25%	3%	27%	10%	2%	7.75%
5	Continuity of Water Supply	24 Hours	1	1	24	24	2	24	24
6	Quality of Water Supply	100%	Good	Not Good	Not Good	Good	Good	Good	Good
7	Efficiency of Redressel of Consumer Complaint	80%	100%	100%	100%	100%	100%	100%	100%
8	O & M Cost Recovery	100% of O &M Cost	86%	175%	144%	179%	206%	100%	161%
9	Efficiency of Collection of Water Charges	90%	41%	90%	95%	75%	95%	100%	95%

The following observations are made from the table above:

a) It has been observed that PPP scheme like Haldia water supply scheme has not fully covered its project area. Jamshedpur water supply scheme, which is managed by a private entity has about 88% coverage. On the other hand, the public water utilities taken as case studies have complete coverage of their project areas. Coverage of Haldia Water Supply Project within Haldia municipal area is low. This is because, the primary aim of the PPP project is to supply water to industries. The PPP operator provides bulk water supply to Haldia Municipal Corporation. The PPP contract agreement does not specify complete coverage of municipal area by the PPP operator. In Jamshedpur City, coverage of water supply is 88%, as much of the areas within Jamshedpur City were served earlier by PHED. JUSCO, the private operator of the water supply scheme have started water supply service outside Tata leasehold areas in recent years, which were served earlier by PHED.

b) Per capita supply is high in Nagpur 24X7 pilot PPP scheme and Jamshedpur water supply scheme. But, per capita supply is low in two PPP schemes named KUWASIP Gulbarga and Haldia Water supply project within Haldia municipal area. There is low consumption of water in high income areas served by KUWASIP Gulbarga project due to high turbidity of water. Per capita supply is low in Haldia municipal area, because the primary objective of the Haldia water supply project is to supply water to industries. Per capita supply is observed low in the public utilities like Yadgir and Zoo Road water supply scheme.

c) Extent of metering is high in PPP water supply schemes. Installation of consumer meter, measurement and collection of volumetric water tariff is essential in PPP project, which is a good practice to prevent wastage of water. In Yadgir water supply scheme, which is a public utility, there is no consumer metering.

d) Non revenue water is less in PPP water supply schemes. However, in Nagpur 24 X 7 Pilot PPP scheme, non revenue water is high due to leakage from old pipe network. In PPP schemes, non revenue water is minimized to increase water revenue.

e) Continuity or duration of water supply is high in PPP water supply schemes. However, duration of water supply in Haldia municipal area is two hours in a day. In the public schemes, water supply is for only one hour duration in a day. Overall, continuity of supply in PPP schemes is more in comparison to public schemes.

f) Quality of water supplied to consumers in PPP schemes is better than public schemes except KUWASIP Gulbarga project. However, quality issue of water of this PPP project is not linked to performance of the private operator. Treated bulk water to the project area is supplied by Karnataka Urban Water Supply and Sewerage Board. In Jamshedpur water supply scheme, excellent quality water is supplied all consumers. As a result, use of bottled drinking water in Jamshedpur City is less.

g) Responses to consumer complaint are found to be quick in all public and PPP water utilities. It has been observed that response to consumer complaint is best in Jamshedpur water supply scheme.

h) O & M Cost recovery is more than 100% in PPP water supply schemes, which is not the case with Yadgir water supply scheme.

i) Efficiency in collection of water charge is high in PPP projects. In Yadgir water supply scheme, which is a public utility, efficiency of collection of water charge is only 41%.

In addition to the above evaluation, the selected water supply schemes are evaluated with respect to six groups of performance indicators relating to technical, customer service, financial, business management, human resource and access of water to poor aspects. It has been found that performance of the selected PPP schemes is good. Summary of this analysis is shown in the table 3 below.

Table 3: Analysis of Effect of Private Sector Participation on Performance of Schemes

Sl . No.	Key Performance Parameter	Observations in PPP Schemes
	Technical:	
1	Level of Non Revenue Water	3% in KUWASIP Project, 2% in Sector V Salt Lake City.
2	Idle Capacity	No Idle capacity
3	Water Quality	Excellent in Jamshedpur Water Supply Project
4	Frequency of Water Supply	24 X 7 in several PPP projects
5	Water Pressure at Consumer Tap	High in most of PPP projects
6	Average per Capita Supply	Above 135 lpcd in two PPP projects
7	Extent of Metering	100% in three PPP projects
8	Revenue Collection Efficiency	Above 90% in four PPP projects
	Customer Service:	
9	Response time to Consumer Complaint	Quick Response
10	Customer Satisfaction	Consumers are satisfied in most of PPP projects.
	Financial:	
11	Operational Cost Ratio	More than 100% operational cost recovered in all PPP projects.
12	Personnel Cost Ratio	Personnel cost ratio is low in PPP projects
13	Energy Cost Ratio	Energy cost is less in PPP scheme in comparison to Pubic scheme.
	Business Management	
14	Planning, supervision and Control	Efficient planning, supervision and control have been observed in Jamshedpur and other PPP schemes.
15	Documentation and Reporting	Documentation and reporting is good in PPP projects.
16	Transparency	Public authority in PPP projects share project information.
	Human Resource:	
17	Staff per 1000 Connection Ratio	Low in all PPP projects.
18	Volume of Water Sold and Staff Ratio	The ratio is high in PPP projects.
	Service to Poor:	
19	Customer in Poor Category to Total Customer ratio	Poor population are covered adequately in PPP schemes

Conclusions and Recommendations:

From the study, it has been found that PPP in urban water supply services is useful and hence needs to be encouraged by Government and Urban local bodies in India. However, a set of guidelines are recommended for development and implementation PPP projects in urban water supply. They are:

i) Applicability of different PPP options need to be analyzed

prior to selecting the preferred option. When selecting an appropriate PPP option, the type of the problem for which improvement is expected by the utility needs to be clear.

ii) The technical and financial feasibility of any PPP project should be carefully analysed and established.

iii) Selection of a PPP project for a specific purpose should be done through participatory process with wide ranging community consultations and involvement. Also, consensus building among all stakeholders is important.

iv) Due to risks involved in PPP projects, risks of all types (political, economic, commercial, technical, and legal) should be assessed and appropriate mechanisms to alleviate them should be adopted.

v) Appropriate water tariff in the selected PPP option should be determined. The tariff should meet the objectives of affordability and equity in addition to the objectives of cost recovery and incentives to conserve water. There should be cross-subsidies, by charging someone more to pay for someone else.

vi) It needs to be ensured that the bidding process in selecting a private partner is transparent and reliable information is available in bidding document.

vii) There is a need to offer PPP contracts that will be attractive for the private sector. These contracts should be comparable with other opportunities available for the private sector.

viii) PPP contract agreement should have strictly enforceable service delivery and performance parameters with the community having an important role in monitoring them.

ix) In a PPP contract agreement, important point such as restrictions on developing other water sources by consumers, needs to be included. This is important to meet target of projected water demand and water revenue collection by the private operator.

x) PPP contract agreement needs to have provision of periodic review and adjustment. This helps in revival of troubled PPP project. Periodic review and adjustment are required because actual project condition can change from what was considered in the project planning and development stage.

xi) If Central and State Governments decides to encourage PPP projects in water sector, regulators will have to be appointed by Governments. Although a PPP contract provides self-contained regulation, a full regulatory framework and the regulatory institutional setup are essential.

xii) Subsidies and guarantees can be used to attract private partner when returns seem small or too risky.

xiii) Social and environmental concerns should be considered from the beginning of the project during setting objectives, gathering information and design of the PPP project. Provision for poor communities will have to be planned within the PPP contract. No PPP project should be undertaken without meeting the interests of the poor sections of society.

xiv) It is essential for municipalities to establish a sound financial base for attracting private sector partners and be seen as potentially reliable partners.

xv) Reduction of staff is a sensitive PPP issue. The issue can be managed by developing strategy to engage municipal staff in other important functions of the municipality.

xvi) There is need to change attitude of municipal staff towards PPP. It is necessary to identify the scope and nature of the concerns of each municipal stakeholder. Mitigating measures of each of these concerns are to be included in the PPP framework.

xvii) Capacity building of municipal staff at different levels is needed.

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