

Nagarlok Vol. XLIV No. 1**January-March 2012****Institutions, Access and Entitlements
to Water Supply in Urban
Households: A Survey of
Recent Literature****V. NAGARAJ AND D. NAMASIVAYAM****INTRODUCTION**

THE DOMESTIC freshwater is a fundamental requirement of human welfare and economic activities. At present, access to clean water is a great human development challenge, particularly in urban boundaries. The recent assessment by UNCHS 2006 estimates that about 970 million urban dwellers are without access to "adequate" water supply. Particularly, the poor families in urban region do not have effective network of water supply (UNDP, 2006; UNWWAP, 2006). Hence, migration, population growth and urban expansion have created huge water demand in urban regions.

Thus, the provision of safe drinking water is also a prime agenda of Government policy. As a result, multilateral and bilateral organisations have extended financial assistance to improve the access to water supply in urban regions. However, the drawbacks in implementation of the policy and political environment of the state have failed to achieve its target in urban water supply projects. At this juncture, the private water suppliers emerged as a major institution in urban water supply sector. The private water supply institution includes public private partnership (PPP) contracts, packaged drinking water and local tankers. However, private sector participation has negatively affected the people by raising the cost of capital, huge amount that requires for repair, replacement and high tariff, which has reduced accessibility and affordability to drinking water in urban regions (Madhav, 2008).

Due to the failure of public and private sectors, inequality in access to safe water has widened its scope to a large extent among the urban households. When the supply and access to water become unequal and inadequate; few people have access to enough water while others are deprived of it. At this juncture, studies on urban water supply are recognised and thematic studies are furnished on water demand,

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supply, urban water pricing and factors determining domestic water demand.

The studies on institutions, access and entitlements to water supply in urban households is a prerequisite in the area of urban water supply. In recent days theoretical as well as empirical studies are conducted in the particular area. In this context, the present study attempts to survey the important recent literature on institutional arrangements for urban water supply, access to water supply and entitlements to water supply in urban households and try to find out the existing research gap for conducting the fresh study.

Literature on Institutional Arrangements for Water Supply

The institutional arrangements for urban water supply play a major role in determining the efficiency and ensuring the uninterrupted water supply service in urban regions. The pioneering studies on institutional arrangements for urban water supply are mainly devoted to developing countries and more specifically to the urban India. The studies proved that the provision of water supply in urban area has, for long, been a function of urban local bodies and this is the case in many urban centres even today. The urban local bodies have different models of institutional arrangements (Fig. 1). First, the municipality is responsible for capital works, operation and maintenance, and provision of water supply. Second, capital works are executed by state-level agencies and operation and maintenance and water supply services are performed by the municipalities. Third, in metropolitan cities, city-level water supply and sewerage boards have been constituted to perform the functions of construction, operation, and maintenance of water supply (NIUA 2000).

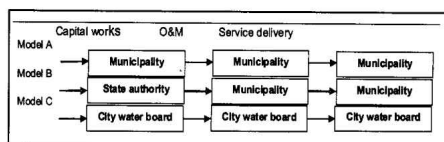


Fig. 1: Model of Urban Water Supply Institutions

In this context, the present article examines major works of institutional arrangements for urban water supply. The institutional

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arrangements are significantly different in different urban local bodies. The studies of challenges in institutional arrangement for urban water supply reveal the importance of dynamic changes in administration towards accountability, transparency and predictability (Shyam, 2000; Connors, 2005). Similarly, Huchon and Tricot (2008) analyse institutional changes in water supply services and policy implementation. Analysis infers that the interaction between beneficiaries and authorities improves the effectiveness of institutional changes and enhance the institutional benefits in urban water supply sector.

Nagues and Thomas (2000) and Kirkpatrick et al (2006) found the importance of utility comparison between the providers and incorporation of household characteristics from their analysis of issues of water service privatisation and price negotiation between private agencies and municipality. Case studies of water supply services and regulatory arrangements reveal that authorities try to achieve a balance between the social and financial objectives (Gupta et al, 2006; Garlach and Richard, 2009; Esther and Richard, 2010).

Hence, the above literature examines the importance of institutional arrangements for urban water supply. It explains the institutional structure, dimensions, role and negotiation between formal and informal water supply institutions in urban regions of India. Most of the studies infer that the changes in institutional arrangements have made unfavourable impact on water supply in urban households. As a whole, the experts in the area of research suggests for new initiatives in institutional and regulatory reforms in urban water supply sector.

The studies suggest that challenges in institutional arrangement, formal and informal water supply institutions, institutional changes in public sector, water utilities, efficiency and reforms in water supply institutions and governance are the factors responsible for efficiency of institutional arrangements. As a consequence in institutional arrangements, the studies are clear about the realignment of institutional arrangement in urban water supply by implementing the effective institutional reforms and incorporate the concepts of accountability, transparent, balanced approach between formal and informal water utilities, homogenous pricing policy, user participation and government's role in water provision.

Literature on Access to Water Supply

Secure and uninterrupted water supply ensures access to water

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Author(s)	Objectives	Methodology	Findings
Marie (1998)	To assess the quality dimension of water supply infrastructure.	Random Sampling 700 households surveyed in Delhi.	Each household spends 5.5 times more than municipal water tax per annum.
Nauges and Thomas (2000)	To address the price negotiation between the municipality and a private stakeholder.	France household survey on water consumption.	Income and housing characteristics determine the price and contracts.
Shyam (2000)	To describe the challenges in institutional arrangement in water supply project.	Ahmedabad Water Supply Project Data.	Corporation modifies their admin matching with the dynamic changes in policy.
Connors (2005)	To explore the institutional changes in Bangalore Water Supply.	Bangalore Master plan Project -2000	Governance is moving towards being accountable, transparent and predictable.
Guliyani et al (2005)	To analyse the water markets, household water demand and poor in Kenya.	Random Sampling 674 households surveyed from urban Kenya.	Due to the failure of public water supply system private agencies have emerged.
Gupta et al (2006)	To assess the efficiency of urban water supply system.	27 Indian Cities	Effectiveness in policy implementation improves the institutional efficiency.
Kirkpatrick et al (2006)	To explore the issues of water services privatisation in Africa.	African water utility statistics for 2000	This study fails to compare performance of private and state-owned utilities.
Mwakalila (2007)	To address residents' perceptions of the performance of water supply institutions	By stratified random sampling method 99 households were surveyed	Majority of the local population demanded the improvements to be done in <i>Dar es Salaam</i> water supply systems.
Nelson et al (2008)	To discuss household water resale activities.	Field survey conducted in Municipality of Maputo.	It needs to legitimisation and decentralisation of regulatory functions.
Huchon and Tricot (2008)	To analyse institutional changes in water supply service and policy implementation.	In-depth field surveys conducted in Hyderabad, Sultan Shahi and Somaliguda.	It concludes need for interaction between the public and the authorities.
Gerlach and Richard (2009)	To investigate the status of water supply service and regulatory arrangements.	Survey conducted in the poor administrative area of Ammam.	It identifies specific regulatory challenges, i.e. quasi-regulator and the water authorities.
Esther and Richard (2010)	To analyse the regulatory experience in developing countries.	11 metropolitan areas were surveyed in developing countries.	In many cases regulatory governance has been equally vulnerable and tries to achieve a balance

supply in urban households. The status of water access establishes socio-economic boost up and quality of life in urban regions. The importance of water access, its impact on urban households and ground level facts are examined in the studies of urban water poverty (Shaban, 2008). Particularly, studies of water access expose that average time

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spent, irregular, inefficient water supply and political economy challenges in implementing water supply projects are factors affecting the water access in urban households. Therefore, investments on water supply projects and introduction of ability to pay are recommended as a suggestion (John et al, 2000; Bajpai and Bhandari, 2001; McKenzie and Ray, 2005, 2009; Lavesh and Aarti, 2006; Anselin et al, 2008).

A few of the books identify the issues of inequity in water access (Luiz et al, 2002; Debra, 2007) and find out the consequences in terms of loss of time and money. Other research findings highlight that cost of new water connection, water tariff and other fee prevent access to connection and consumption level in urban regions (Kayaga and Richard, 2007; Basani et.al., 2007). In general, the studies analyse existing position of water access in urban region and identify that connection deposit, fee and other charges, location of household, challenges in project implementation are the vital factors affecting domestic water access in urban regions. Hence, the studies suggest measures to solve the same.

The above literature reveals the nature and extent of access to water supply in urban households. In addition, barriers in access to water supply, socio-economic variables and accessibility of domestic water and changes in sources of water access are also explored. The studies may provide insights to the researchers to analyse the access to water in the study region. The studies on access to water supply in urban households revealed that most of the cities and towns in India do not have access to tap water. Some of them share it with others and some of them have to transport it from outside their dwelling.

Literature on Entitlements to Water Supply

The research on entitlements to water supply is a recently issue in the area of urban water to measure the inequality in water access. It is considered as a measuring road instead of regular tool for measuring status of water access. Hence, the studies of entitlements to water supply in urban households are very scanty. The idea of entitlements to urban water supply was articulated and discussed by Webb and Iskandrani (1998) at the policy level in connection with slum households'. Anand (2001 and 2004) has used entitlement approach to water supply by following the Sen's entitlements approach to examine the inequality in water access at the metro city level.

The studies on entitlements to water supply explore the application of entitlements approach for assessing the inequality in water access in urban households. The theory oriented studies give an

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Author(s)	Objectives	Methodology	Findings
John et al (2000)	To report the changes in sources of water access in East Africa.	16 urban sites were selected and surveyed.	Average time spent collecting water in 1997 is more than 3 times that was in 1967.
Bajpai and Bhandari (2001)	To assess the access to water supply in urban households of India.	54 th round NSSO Survey (1998)	It links the ability to pay with the need for water access improvement.
Luiz, et al (2002)	To evaluate inequities in access to drinking water services.	Multi-Purpose Household Survey (1995-1999)	Households without tap spend a considerable amount of time getting water.
McKenzie and Ray (2005)	To examine the nature and extent of access to drinking water in urban India.	NFHS 1992-93 and 1998-99	Access to water from protected sources is irregular and inefficient.
Lavesh and Aarti (2006)	To explain the access to water supply and urban poor in India.	NFHS 1998 - 99 and 2001 Census	Land tenure, political barriers and location are main barriers for water access.
Debra (2007)	To analyse the equity implications of urban water sector reform.	1994 Bolivian Integrated Household Survey.	Households without connection spend much more than connected households.
Esther (2007)	To analyse socio-economic variables and accessibility of domestic water.	2002 South Africa General Household Survey.	There is a strong relationship between access to water and socio-economic conditions.
Kayaga and Richard (2007)	To investigate the actual costs and charges of obtaining a connection.	Two utility-served areas are surveyed in Uganda.	The costs of new water connection prevent the new water supply connections.
Anselin et.al. (2008)	To account the value of improved access to water in the Indian cities.	2905 = Bangalore 2508 = Bhopal	Introducing equity concerns would possibly alter the investment schedule.
Basani et al (2008)	To identify the determinants of water connection and consumption.	451 connected and 375 non-connected households.	The connection fee and water tariff determine the water connection and consumption.

overview of the relevance and usage of entitlements approach for water supply and the empirical studies tested and proved the applicability of entitlement approach and access to water supply in urban households. It would help the researcher to frame the entitlements to water supply in the study area.

The literature on entitlements to water supply in urban households

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is scanty. Some of the studies discussed the entitlements to urban water supply at the policy level in connection with slum households and the empirical studies have implemented the entitlements to water supply by following the idea of Sen's entitlements approach to examine the inequality in water access at the metro city level.

Author(s)	Objectives	Methodology	Findings
Webb and Iskandarani (1998)	To examine the issues and research needs of water insecurity and the poor.	Policy Analysis	It finds out the need for research on improved policy design and action.
Anand (2001)	To examine the water supply institutions and entitlements to water supply.	Multi-stage cluster sampling method 148 households surveyed in Chennai City.	The entitlements and capabilities approach to understand inequality in access to urban water supply.
Anand (2004)	To explore the political economy of water scarcity and issues of inequality, entitlements and identities.	Case Study conducted in Chennai and Cauvery Delta area.	It finds that various institutional forces and motivations are the major factors to influence the problem of water scarcity in Southern India.
Anand (2007)	To assess India's progress in drinking water supply in the context of Millennium Development Goals.	Policy Analysis	It concludes that the introduction of entitlements-based indicator is an alternative tool to assess the problem of inequality in access.

CONCLUSION

The overview of the literature clarifies that most of the studies have examined the issues in part and some of them address more than one issue, such as institutional arrangements for urban water supply, access to water supply and entitlements to water supply at theory and empirical level and some of the studies have failed to provide empirical evidence on the inter-linkages of water supply institutions in urban regions and its consequences on household water access by different income groups, different regions and their entitlements status on different water supply institutions. On the whole, the research gaps have motivated to take-up a fresh study on institutions, access and

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entitlements to water supply in urban region at the household level. With this backdrop, the researcher examines the issues related to institutional arrangements for urban water supply, access, entitlements to water supply and take-up a fresh study on institutions, access and entitlements to water supply in urban region at the household level.

References

- Anand, P. B., The political economy of water scarcity and issues of inequality, entitlements and identities: A tale of two cases from southern India, *International Journal of Technology Management and Sustainable Development*, 3 (2), 2004, 15-132.
- Anand, P.B., Semantics of Success or Pragmatics of Progress? An Assessment of India's Progress with Drinking Water Supply, *The Journal of Environment Development*, 16(1), 2007, 32-57.
- Anand, P.B., Water scarcity in Chennai, India: Institutions and entitlements and aspects of inequality in access, WIDER Discussion Paper, No.140, UK. 2001.
- Anselin, Lu., Nancy Lozano-Gracia., Uwe Deichmann and Somik Lall, Valuing Access to Water – A Spatial Hedonic Approach Applied to Indian Cities, The World Bank Policy Research Working Paper, No. 4533, USA, 2008.
- Basani, Marcello, Jonathan Isham, and Barry Reilly, The Determinants of Water Connection and Water Consumption: Empirical Evidence from a Cambodian Household Survey, *World Development*, 36 (5), 2008, 953-968.
- Connors, Genevieve., When utilities muddle through: pro-poor governance in Bangalore's public water sector, *Environment and Urbanisation*, 1, 2005, 201 – 217.
- David, McKenzie, and Isha Ray., Urban Water Supply in India: Status, Reform Options and Possible Lessons, *Water Policy*, 11(4), 2009, 442-460.
- Debra K. Israel., Impact of Increased Access and Price on Household Water Use in Urban Bolivia, *The Journal of Environment Development*, 16 (58), 2007, 58 – 83.
- Esther, Gerlach and Richard Franceys., Regulating Water Services for All in Developing Economies, *World Development*, 20 (9), 2010, 1229 – 1240.
- Gerlach, Esther and Richard Franceys., Regulating Water Services for the poor: The Case of Amman, *Geoforum*, 40, 2009, 431– 441.
- Gulyani, Sumila., Debabrata Talukdar and R. Mukami Kariuki., Universal (Non)service? Water Markets, Household Demand and the Poor in Urban Kenya, *Urban Studies*, 42(8), 2005, 247-1274.
- Gupta, Shreekanth, Surender Kumar and Gopal K. Sarangi., Measuring the performance of water service providers in urban India: Implications for Managing Water Utilities, National Institute of Urban Affairs Working Paper No. 06, New Delhi, 2006.

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- Huchon, Agnès and Guillaume Tricot., "Between Citizens and Institutions: the Dynamics of the Integration of Water Supply and Sanitation Services in Hyderabad, Centre for Social Sciences and Humanities Occasional Paper, No. 22. New Delhi, 2008.
- John, Thompson., Ina T. Porras., Elisabeth Wood., James K. Tumwine., Mark R. Mujwahuzi., Munguti Katui-Katua., and Nick Johnstone., Waiting at the Tap: Changes in Urban Water Use in East Africa over Three Decades, *Environment & Urbanization*, 12 (2), 2000, 37 – 52.
- Kayaga, Sam and Richard Franceys., Costs of Urban Utility Water Connections: Excessive Burden to the Poor, *Utilities Policy*, 15, 2007, 270 – 277.
- Kirkpatrick, Colin., David Parker and Yin-Fang Zhang., State versus Private Sector Provision of Water Services in Africa: An Empirical Analysis, *The World Bank Economic Review*, 20(1), 2006, 143 152.
- Madhav, Roopa., Tirupur Water Supply and Sanitation Project An Impediment to Sustainable Water Management?, *International Environmental Law Research Centre Working Paper*, No. 1, Geneva, 2008.
- Marie-He'le'ne, Ze'rah., How to assess the quality dimension of urban infrastructure: The case of water supply in Delhi, *Cities*, 15(4), 1998, 285-290.
- McKenzie and Ray., Household Water Delivery Options in Urban and Rural India, *Stanford Center for International Development Working Paper*, No. 224, United Kingdom, 2005.
- Mwakilila, Shadrack., Residents' perceptions of institutional performance in water supply in Dar es Salaam, *Physics and Chemistry of the Earth*, 32, 2007, 1285–1290.
- Urban Statistics Handbook 2000, National Institute of Urban Affairs, Delhi, 2000.
- Nauges, Céline and Alban Thomas., Privately Operated Water Utilities, Municipal Price Negotiation, and Estimation of Residential Water Demand: The Case of France, *Land Economics*, 76(1), 2000, 68 – 85.
- Nauges, Céline and Caroline van den Berg, Demand for Piped and Non-piped Water Supply Services: Evidence from Southwest Sri Lanka, *Environ Resource Econ*, 42, 2009, 535-549.
- Nelson P, Matsinhe., Dinis Juízo., Berta Macheve and Clara dos Santos., Regulation of formal and informal water service providers in peri-urban areas of Maputo, Mozambique, *Physics and Chemistry of the Earth*, 33, 2008, 841-849.
- Shaban, Abdul, Water Poverty in Urban India: A Study of Major Cities, UGC Seminar Programme June 30, New Delhi, 2008.
- Shyam S, Dutta., "Partnerships in urban Development: A Review of Ahmedabad's Experience, *Environment&Urbanization*, 12(1), 2000, 13 – 26.
- Meeting Development Goals: Water Sanitation in the World Cities, UNCHS, London, 2006.
- 10 V. NAGARAJ AND D. NAMASIVAYAM
- Beyond Scarcity: Power, Poverty, and the Global Water crisis, UNDP, New York, 2006.
- Water: A Shared Responsibility, UNWWAP, London, 2006.
- Webb, Patrick and Maria Iskandarani., Water Insecurity and the Poor: Issues and Research Needs, *University of Bonn Development Policy Discussion Paper*, No. 2, Germany, 1998.
- Wutich A, Amber and Kathleen Ragsdale., Water Insecurity and Emotional Distress: Coping with Supply, Access, and Seasonal Variability of Water in a Bolivian Squatter Settlement, *Social Science and Medicine*, 67, 2008, 2116–2125.