

Chapter I

Introduction

Safe water and adequate sanitation are basic to the health of every human being. Throughout history, civilizations have thrived in regions where water has been in abundance. Historical evidence also shows that during the Roman civilization, issues like purity of water, turbidity, ground water, slopes of aqueducts, pipes, wells, etc. were points of discourse of the urban water supply systems (Biswas: 1985). However, increased population and associated pressure on resources in the present time have led to water scarcity, which is a nightmare for a huge section of population all over the globe, more so in the developing countries (Borah: 2013). Most of the developing countries are now witnessing rapid urbanization due to increasing population and migration. This rapid growth of urban population is having serious implications in terms of urban infrastructures and services such as potable water and sanitation, housing, roads etc. There is a big gap between demand and supply of infrastructure facilities in urban areas of India. Basic infrastructure is the fundamental need of urban life. The provisions for strengthening infrastructure as an objective indicator of the development process reveal the standard of the actual field. The services provided by the urban governments in most developing countries are costly, ineffective, unreliable and of poor quality (World Bank: 2003). Besides, these services are not easily accessible to a larger section of society particularly the urban poor and disadvantaged groups (World Bank: 2003). This is particularly so in developing countries like India where public service are provided under highly inefficient bureaucratic monopolies and incredible political promises (Smitha: 2011). The pan-India scenario of drinking water supply and sanitation facilities continues to be deficient (Ghosh Mitra, 2010 Vishwanath, 2013). No Indian city receives piped water 24 hours a day, 7 days a week.¹ According to a WHO-UNICEF Joint

¹ The World Bank, “*Urban Water Supply in India*” (4July 2011), <http://www.worldbank.org/en/news/feature/2011/09/22/urban-water-supply-india> (accessed on 18 March 2013)

Monitoring Programme (JMP) for Water Supply and Sanitation, in 2011, 92 per cent of the total population of India has access to improved sources of water (96%-urban/89%-rural).² However, the water supply systems in most cities of India are poorly operated with weak infrastructure and worse resource management (Ghosh Mitra, 2010; Mckenzie and Ray, 2009). And the city of Guwahati is no exception (Borah, 2013).

Against this back ground, many initiatives have been taken at the global and national levels to improve the quality of governance and service delivery in urban areas. The UN-HABITAT (2002) in its Global Campaign on Urban Governance advocated the principles of urban governance such as-sustainability, equity, efficiency, transparency and accountability, civic engagement and citizenship and security. These urban governance principles are relevant to any city in the world.

In developing countries since the ability of the state for providing these services has proved inadequate and unsustainable, new arrangements like decentralization, private participation, public-private partnership have been introduced to bring efficiency and performance standards for service provisioning (Smitha : 2011). Thus, multiple agents and different mechanisms and practices are involved depending on the nature of service and institutional context in terms of service delivery in the cities.

In India, the process of urbanization is an ever- expanding phenomenon, with increasing population in cities and towns leading to growing demand for basic civic amenities and services, which underscores the importance of urban governance in improving the conditions of city life (Mukhopadhyaya, 2001). Besides, effective delivery of services must be accompanied by reforms to strengthen the institutional framework to improve the effectiveness of delivery, and promote inclusive governance with greater involvement of communities, especially the poor. In this context, the 74th Constitutional Amendment Act (CAA) in India is considered as a new institutional innovation that drives to bring 'locality' in the governance of the cities besides symbolizing the promotion of local autonomy and devolution of powers to the level closest to the people. The 74th CAA,

² WHO/UNICEF Joint Monitoring Programme (JMP) for *Water Supply and Sanitation*, WHO-UNICEF, <http://www.wssinfo.org/data-estimates/table> (accessed on 18 March 2013)

1992 clearly aims at decentralization and creation of a democratic governance structure at the local level. This Act provides constitutional status to the urban local governments. The 74th Constitutional Amendment Act aims at a transformation in the ‘structure’ of urban service delivery. This Act is landmark initiative of the Government of India to strengthen urban local self government in cities and towns.

1.1. Statement of the Problem

Water scarcity and inadequate sanitation facilities are increasingly being posed as a development challenge for many countries, particularly in urban areas (Saleth and Dinar, 2004). Urban India today faces major problems such as shortage of safe drinking water, inadequate sanitation facilities and poor solid waste management services. The urban water supply and sanitation sector in India is characterized by inefficient delivery of services (including high unaccounted water and intermittent water supplies) and inadequate coverage with piped water supply, especially for the urban poor. The water supply system in urban India are plagued by problems of inadequate distribution, unreliable service, deteriorating water quality, increasing user fees for water and inadequate funds for operation and management. Many large Indian cities have to source water from long distances ranging from 50 to 200 km due to exhaustion or pollution of nearby sources. This increases the cost of raw water and enhances the possibility of leakage during transmission.³ Errors in metering, unbilled water consumption and plain theft contribute to commercial losses. All these factors lead to high levels of non-revenue in the urban water supply system. With no monitoring systems in place and no incentive to reduce inefficiencies, the urban water supply scenario in India is one of poor service delivery, poor maintenance of physical systems, poor cost recovery, and poor generation of revenues. With rapid increase in urban population and continuing expansion of city limits, the challenge of delivering water to Indian cities is growing almost exponentially. Increasing attention, therefore, needs to be given to water supply and sanitation services as these affect the quality of life of citizens and economic growth of the country.

³ Ministry of Urban Development, Government of India, ‘*Report on Indian Urban Infrastructure and Services*’, March, 2011, p-46

The government is responsible for catering to the basic needs including water and sanitation of the people including poor people in the cities (Smitha: 2011). Most of the water and sanitation facilities in cities are state-owned either by the corporation or *parastatal* body (board). However, due to haphazard growth of urban population, the government is not able to meet expectations. To solve this issue several governance reforms have been introduced in both developed and developing countries of the world. These are decentralization, private participation and public-private partnership (PPP). To cope up with this, the Government of India has also passed 74th Constitutional Amendment Act, 1992. The act aims at decentralization and creation of democratic governance at the local level. This amendment has also opened up spaces for the participation of civil society organizations in the urban governance. In the shift of government to governance, the role of civil society organizations has been significant. Non Governmental Organizations (NGOs) play multifarious roles in the implementation of governmental programmes. NGOs have carved out new spaces in the political processes and delivery of public services. They play an important role in contributing to filling the gaps in the efforts of the governments.

Guwahati is one of the fastest growing cities of Northeast India. The haphazard growth of the city has resulted in a chaotic situation, giving rise to circumstances not favourable to its residents in many aspects. Amongst these, drinking water and sanitation facilities are the most crucial problems confronting the residents. There is a variety of institutional arrangements in the provision of urban water supply in the city. The system of public water supply in Guwahati is mainly administered through three organizations- the Guwahati Municipal Corporation, the Public Health Engineering Department and, the Assam Urban Water Supply and Sewerage Board. Besides, Guwahati Municipal Corporation is the sole authority for sanitation as well as collection and disposal of the garbage in the city. The 74th CAA has redefined the role, power, functions and finances of the Urban Local Bodies (ULBs) wherein the Twelfth Schedule of the Constitution lists additional functions to be carried out by ULBs. In this context, the 74th CAA may be considered a landmark as it devolves power to the Corporation by consideration the global trends towards urban governance to make the Corporation- as a pro-people

institution. At this juncture, it is essential to know whether organizational and institutional arrangements for Guwahati have made any significant contribution in the delivery of services with reference to water supply and sanitation. As the urban governance is an important trend to the development, it is essential to know whether urban governance has promoted development with reference to effectiveness, equity and sustainability in the delivery of services. Therefore, there is an immediate need for an in-depth study focused on these areas.

Thus keeping this need in view the present study tries to examine the relationship between urban governance and service delivery in terms of efficiency, equity and sustainability with special reference to water and sanitation in Guwahati City.

1.2. Review of Literature

Over the past two decades, many scholars have been focusing their attention on urban governance and service delivery. The available literature on urban governance provides a conceptual framework for analyzing the relation between urban governance and service delivery. For the purpose of this study review of related literature has been divided into three groups viz. theoretical, conceptual and empirical. Theoretical review helps us to spell out the theoretical relationship between urban governance and service delivery; conceptual review helps to understand the concept and empirical studies help in understanding the research gap and field realities. Emphasis is placed on empirical studies in Guwahati city in order to identify researchable issue and to spell out appropriate methodology.

1.2.1. Theoretical Review

There are several theories of the understanding of governance and service delivery. The purpose of the discussion on the various theories and models used to describe the workings of governance systems is presented in the following section:

The term governance was first used by the World Bank in its report on Sub-Saharan Africa in 1989 (Mathur 2008: 2). Since then governance has emerged as an important element in policy discourse. Reviews of literature generally demonstrate that governance

has different meanings and is used in a variety of ways. But there is a baseline agreement that governance refers to the development of governing styles in which boundaries between and within public and private sectors become blurred (Stoker 1998: 155). Government is one of the actors in governance. The concept of governance indicates a shift away from the well-established notions of the way government sought to resolve social issues through the top down approach. Other actors involved in governance vary depending on the level of government. Governance is concerned with the network of relationships of three actors- state, market and civil society. It is concerned with the changes taking place in the organization of the state and its relationship with private sector and civil society actors. Governance may like to impose its will but its acceptance will depend on compliance and actions of others. One institution depends on another and this is what Stoker refers to as power dependence (Stoker 1998: 27).

A list of theoretical construct conceptualizing governance includes: (a) the minimal state; (b) the New Public Management; (c) governance as a socio-cybernetic system; (d) governance as self-organizing networks; (e) Public Choice theory and (f) political economy.

(a) The Minimal State: The theory of governance as the minimal state refers to an organizational structures that arises when there is no government involvement. Applying this theory to state affairs would suggest that state affairs would be regulated without intervention from a formal actor, such as national or state governments (Peters and Pierre 1998:223-243). Rather, governance would arise from the aggregation of individual decisions in the market place, and as a result, there will always be some sort of organic frame work that governs the behavior of all actors within the state. More often than not, this concept of the minimal state is brought up as rhetoric to demonstrate a- preference for less government. In addition, some scholars like Rosenau, believe that governance differs from market interactions-that aggregating informal and uncoordinated individual decisions to create order do not amount to governance. This is because it is believed that individual actors within the markets lack the intentional or shared goals required for a governance arrangement. Thus, there is no group decision- making to address shared

concerns in the concept of the minimal state. As a result there is no governance according to many scholars.

(b) The New Public Management Theory: The New Public Management theory involves managing an organization by introducing private-sector management methods and incentive structures into the particular organization (Peters and Pierre: 1998). Advocates of this theory believe that introducing private-sector methods and incentive structures into state organizations will increase the efficiency of these organizations.

They derive their inspiration from market economics, rather than democratic theory. Applying the new public management theory to state organizations would require running the organizations like a private business. This involves two aspects. First, state organizations may apply traditional private sector management techniques such as: (1) clear standards and measures of performance, (2) results-based management techniques, (3) a focus on the bottom-line. Second, state organizations may adopt portions of the corporate governance theory that structures private businesses. Since corporate governance is more concerned with overall system by which organizations (public or private) are directed and controlled, commonly including principles of openness, integrity and accountability (Peters and Pierre: 1998).

(c) Governance as socio-cybernetic system: Governance as a socio-cybernetic system refers to informal and non-governmental methods of organizing actors that are accountable to a government in some manner. This theory of governance does not require a sovereign authority, as it brings together numerous actors, from governments to nongovernmental organizations, all who could benefit from the synergy to solve shared problems and take more effective actions to address shared concerns. The socio-cybernetic system relies on the view that policy-making actors in a specific area of policy need each other because no single actor can effectively address those problems alone. According to this theory, governance arrangements arise from the interaction of various social-political groups and organizations (Hist and Paul 1994).

(d) Governance as self-organizing networks: The theory of governance as self-organizing networks goes further than governance as socio-cybernetic systems and refers to governance arrangements that develop from coordination among all the actors in a network that are not accountable to a government body. This theory refers to the new structures of wide spread social coordination and interaction between both public and private institutions and organizations in the delivery of services involving a greater role of private non-state or *quasi*-state institutions (Hist and Paul 1997).

(e) Public Choice Theory: Public Choice theory is useful in analyzing the benefits and costs of decentralizing the provision of delivery services. Public Choice theory assumes that the voter is a customer and the politician is a businessman. Public choice school holds the view that the people are aware of their needs, and therefore people's involvement in planning and implementing will be more effective and efficient (Russel and Nicholson, 1981). Hence, the theory proposes to allow them to make choices about services, taxes and other policies. Again, the problem is that the Public Choice theorist is not much concerned with improving the capacity of government institutions for facilitating effective services which may not be achieved by market mechanism. Public Choice approach can be useful in understanding the nature of goods and services. The main limitation of Public Choice approach is that it is too rationalistic and lays out narrow prescriptions (Oppenheimer 1981).

(f) Political Economy: From the perspective of political economy , both institutional and financial arrangements have an impact on the cost efficiency of delivery of services (Rondinelli et. Al. 1989: 62). It includes significant factors like political, administrative, financial, social, organizational, local resources, technical assistance and so on. In decision making process political conditions (creative and systematic thinking of leaders and political stability) are considered very significant which affect the implementation of urban governance. Political economy implies that useful relationships among the interest groups are necessary for policy- making and implementation. Even in non-democratic countries decisions are made not only by rational calculation but also by political bargaining and negotiation (Rondenelli et. al. 1989:80). The most common political

rationale for urban governance is that it is assumed as good governance which is very much closer to the people (Inman and Rubinfeld 1997). It accommodates pressure of regional autonomy, and sustains a heterogeneous society. The economic rationale for urban governance is to improve the 'competitiveness' of governments by satisfying the wishes of citizens and cost efficiency in delivery services (Salmon 1987:24). Nevertheless, it is not very clear whether political economy can identify local needs and satisfy people in a society where society is based on a certain hierarchy. Again, there is a debate as to whether politics and economics will go together.

Governance as explained briefly in its various theoretical frameworks has to be understood as a multidimensional concept. Hence the functioning of governance in the urban domain encompasses and embraces a variety of ideas. These comprise inter-governmental relations, such as negotiations, agreements and co-operative ventures among public and private parties, non-governmental and community-based organizations, implying bottom-up decision making process.

1.2.2. Conceptual Reviews on Urban Governance

Literature on urban governance in general and related to service delivery in particular is exhaustive but literature dealing with the issue of urban governance and service delivery in Assam is relatively scanty. However, for the purpose of the present study conceptual reviews on urban governance and service delivery have been reviewed in the following section:

Urban governance is derived from the concept of governance in relation to urban areas to be reflective of how the various constituents of public service delivery are organized to increase the welfare of citizens. The urban or city governance definition and the process are essentially those pertaining to governance in general i.e., central to the concept of city governance is the notion that multitudes of actors are involved in the city governance process. Urban governance is the sum of the many ways individuals and institutions, public and private, plan and manage the common affairs of the city. It is a continuing process through which conflicting or diverse interests may be accommodated and co-

operative action can be taken. It includes formal institutions as well as informal arrangements and the social capital of citizens (Hust 2005: 8).

Sanction and Robert (2009)⁴ emphasise that municipalities are responsible for many essential services and have become vital agents for implementing provincial policies, including those dealing with the environment, emergency planning, economic development and land use. In foundations of governance, experts from each of Canada's provinces came together to assess the extent to which municipal governments have the capacity to act autonomously, purposefully, and collaboratively in the inter-governmental arena. Foundations of governance shows that municipal governments require the legitimacy granted by a vibrant democracy in order to successfully negotiate and implement collective choices about the future of communities.

A Study by Baud and Wit (2009)⁵ illustrates that the role of state in urban governance is increasingly being balanced by other players, such as the private sector, local and international NGO. The 74th Constitutional Amendment in 1992 has brought about a paradigm shift in governance, decentralizing the responsibilities to local governments and reducing the role of the national and the state government. More importance is also being given to the role of citizens and civil society organizations. The changing role of the state has given rise to specific themes in urban governance which form the basis of discussion in the state that is (1) the movement to bring the government closer to the citizens through decentralization, (2) the movement by which the government works with the private sector and civil society groups in providing the services to its citizens. The study concludes that citizen participation is one of the most important instruments in ensuing equality in service delivery and accountability of the service provided.

⁴ Andrew Sanction, Andrew Robert Young (eds), *Foundations of Governance: Municipal Government in Canada's provinces*, University of Toronto Press, Canada, 2009

⁵ I.S.A Baud and J.De. Wit, *New Forms of Urban Governance in India-shifts, Models, Networks and Contestations*, Sage Publications, India, Pvt. Ltd, 2009

A Study by Adama (2012)⁶ explains that spatial inequality in service delivery is a common feature in African cities. Urban governance policies such as privatization serve as key strategies through which the state regulates and reproduces spatial inequality in service delivery. This study examined how governance practices related to privatization and the regulatory role of the state reinforce spatial inequalities in the delivery of solid waste services in Abuja, Nigeria. It focuses primarily on the issue of cost recovery. The study reveals that little sensitivity to income and affordability, and to income differentials between neighbourhoods in the fixing of user charges and in the choice of the billing method is contributing to spatial inequalities in service delivery. The study suggests that these practices are linked to a broader issue, a failure of the government to see the people as partners.

While exploring the concept of governance and the kind of transformation of the state that is taking place in India, the study by Mathur (2008)⁷ finds that cooperative networks of the state; market and civil society- are taking over roles that were earlier confined to the state alone. This transformation leads to many challenges. Existing institutions of governance have to be so strengthened that they are able to face new demands. New institutions have to be forged that can fulfill the functions of coordination, control and regulation. The study presents a brief survey of this movement from government to governance and attempt to unravel a complex web of institutions that have emerged since governance became an important element of the policy discourse.

Similarly a study by Sharma, (2004)⁸ gives a theoretical framework of the meaning, nature and scope of local government while clearly distinguishing between local government and local-self-government. A historical background of India's local government is given. It has also made a comparative analysis of local governments of India, U.K., U.S.A and France. A detailed discussion on the 73rd and 74th Amendments of

⁶ Onyanta Adama, *Urban governance and spatial inequality in service delivery: a case study of solid waste management in Abuja, Nigeria* (Waste Management & Research Journal), Sage Publications, U.K., 2012

⁷ Kuldeep Mathur, *From Government to Governance*, National Book Trust India, New Delhi, 2008

⁸ Manoj Sharma, *Local Governments: Rural and Urban*, Anmol Publications Pvt. Ltd. New Delhi, 2004

the Constitution of India is added. Functions and role of local government in India and the state's relations both in rural and urban also find important place in the book.

A study by Rao and Prasad (2007)⁹ examined the different aspects of urban administration and the issue of accountability of urban local government to its stakeholders. As urban local government institutions have to play a dynamic role to play, it is possible only in a people friendly environment. It suggests several measures to be undertaken to make urban local government accountable. For example accountability to state and central governments, accountability to civil society. Above all, it emphasizes on adopting a common vision of government departments and agencies and between the local communities for the ultimate achievement of the goal.

A study by Dhaliwal (2000)¹⁰ focuses on the theoretical and practical aspects of municipal administration along with duties of the municipal employees. The study also shows as to how the involvement of citizens can lead to the improvement in the functioning of urban local bodies. The study clearly shows the importance and need of awareness to their responsibilities by the public, the need for local politicians to rise above their selfish motives and coordination between the municipal committees and the various department of the government.

While examining the modern urban governance system in the North-eastern region in the post-amendment era, a study by Singh (1999)¹¹ presents a comparative picture of urban governance in the scheduled areas. The writer attempts to trace the historical development of urban local government in the north eastern state. In addition to the Fifth and Sixth Schedules and certain special articles of the Constitution, the local administration in the region is carried out under the traditional system besides modern municipal organizations. The study is probably a pioneering work on urban local

⁹ C.Rao and G. Prasad, *Accountability of Urban Local Governments in India*, Atlantic Publishers and Distributors Pvt.Ltd, New Delhi, 2007

¹⁰ S.S. Dhaliwal, *Municipal Administration*, Deep & Deep Publications, New Delhi, 2000

¹¹ U.B. Singh, *Urban Governance in North-Eastern States*, Gyan Publishing, New Delhi, 1999

governance in the region and would necessarily provide a frame work to the policy makers to bring uniformity in urban administration all over the country. Such a study would also help in linking the north-eastern region to the national main stream.

A study by Prasad (2006)¹² shows that states have no participation in the decision-making and implementing processes, though the urbanization in these states is creating urban human problems of complicated nature at a faster rate. The State Governments have not yet implemented the provisions of the 74th Amendment Act, 1992 for the setup of the Municipalities which are not in keeping with the national goal-democratic decentralized governance and planning processes. The concept of democratic decentralized governance hardly operates in these states. The study suggests implementation the 74th Constitutional Amendment Act for set-up of the urban governance in the notified towns, to enable the citizens to participate in the decision-making and implementing processes of complicated urban problems directly affecting their daily lives. The functions of the state governments and Urban Local Self-Governments as partners are a common endeavour to improve the living conditions of the urbanities.

A study by Sharma (2014)¹³ on the urbanization process in Guwahati City shows that the growth of the city is tremendous but the overall pattern of development management has remained almost the same throughout the years.

While highlighting the status of municipal services in India, the study by Singh (2006)¹⁴ reveals that in Assam, sewage system is virtually non-existent and only 35% of the urban households are provided tap water by the urban local bodies. The study suggests some ways for improving municipal service delivery like promotion of greater competition in

¹² R.N. Prasad, *Urban Local Self Government in India with special reference to North-Eastern States*, Mittal Publications, New Delhi, 2006

¹³ Purobi Sharma, *Genesis of a City: Urban Development in Guwahati*, EBH Publishers (India), Guwahati, 2014

¹⁴ A. K. Singh, "Restructuring of Municipal Services in India" in *Indian Journal of Public Administration*, Vol. L-II, No. 3 July-September, 2006, p.6

service delivery across sectors and public-private partnership, wide use of e-governance, creation of better coordination mechanism, introduction of report-card system etc.

A study by Smitha and Sangita (2008)¹⁵ explores public-private partnership in the light of persistent state failure, institutional constraints, and systematic weakness, which impede the service delivery. The study focuses on key issues: whether public-private partnerships facilitate innovation, and thereby enhance quality of services, and essentially pro-poor reflecting equity concerns. The study examines various types of partnership at work for service delivery in metropolitan Bangalore.

While examining the state of affairs of the urban local bodies in the urban areas of Assam, a study by Das (2002)¹⁶ mainly focuses on the basic services of the urban local bodies especially of the Guwahati City and the Mangaldoi Town in Assam. The study argues that state-society synergy i.e., co-operation between the state and civil societies in the urban local self-governance system is useful for effective urban environmental management.

1.2.3. Review of Literature on Urban Water Supply and Sanitation

India faces a pressing developmental challenge, namely providing safe, affordable and efficient drinking water and sanitation services to a burgeoning urban population, the size of which is largely underestimated even by the official records of the census of India. Inadequate water supply and sanitation services impose a disproportionate financial and public health burden on the poor. It also results in unregulated and unsustainable ground water pumping, poor quality infrastructure, insufficient maintenance and non-standardized accounting practices undermine the effectiveness of water utilities and lead to unaccepted by high level of water loss. The urban water and sanitation services sector

¹⁵ K.C. Smitha and S.N. Sangita, *Urban Governance and Service Delivery in Bangalore: Public-Private Partnership* (Working Paper 189), Institute For Social and Economic Change, Bangalore, 2008.

¹⁶ Kalyan Das, *Urban Basic Services and the issue of the State Society Synergy: Cases from urban areas of Assam* (OKD Journal), Social Change and Development, October, 2002, pp. 17-35

needs systematic responses to address inter connected problems, which have huge ramifications for other development imperatives for India as well.

A study by Sarangi, (2010)¹⁷ reveals that by 2050; 50 per cent of India's population will be confronted with water problems exacerbated by the effects of climate change. Consequently, planners and policy-makers are increasingly coming under pressure to optimize the current use of water and to develop innovative solutions for sustainable water augmentation and management in the long term. One of the solutions that has been proposed but only partially adopted is a public-private partnership arrangement regarding the administration and management of water resources. The result suggest that despite efforts made to introduce private elements to operate water-supply systems in most of the urban conglomerations in India, the effects have actually been minimal, confined only to the top end of the supply chain viz. Operation and Management (O&M). Instead, the old structure continues to be the dominant arrangement.

A study by Jha (2010)¹⁸ argues that economic, technical, institutional as well as social factors constrain access to safe drinking water and proper sanitation in India for both the urban and rural poor, and that coverage figures do not reflect this restricted access. The study finds that, increasingly, communities are being required to manage their own water and sanitation schemes, not just in rural are but in urban areas as well. Often, however, the chances of success of community management are vitiated because policy makers misunderstand and misapply three interlinked concepts that are crucial to the success of community-managed water and sanitation schemes participation; water and sanitation burden and project ownership.

¹⁷ Gopal. K.Sarangi, *Towards a Public-Private Partnership Regime: An Analysis of Water-Supply System in Urban India*, ASIEN, October, 2010

¹⁸ Nitish Jha, *Access of the poor to Water Supply and Sanitation in India: Salient concepts, issues and cases*, www.Ipc-undp.org. May, 2010 (accessed 12 December 2013)

A study by Chaplin (2011)¹⁹ has examined how environmental problems confronting Indian cities have arisen and subsequently forced millions of people to live in illegal settlements that lack adequate sanitation, and other basic urban services. This has occurred because of two factors. The first is the legacy of the colonial city characterized by inequitable access to sanitation services, failure to manage urban growth, proliferation of slums, and inadequate funding of urban governments. Second is the nature of the post-colonial state, which, instead of being an instrument for socio-economic change, has been dominated by coalitions of interests accommodated by the use of public funds to provide private goods. The result is that the middle class has been able to monopolise what sanitation services the state has provided because the urban poor, despite their political participation, have not been able to exert sufficient pressure to force governments to effectively implement policies designed to improve their living conditions. The consequence is that public health and environmental policies have frequently become exercises in crisis intervention instead of being preventive measures which benefit the health and well-being of the whole urban population. Thus the government has failed to provide equitable access to sanitation services for all citizens.

A study by Reddy and Snehalata (2011)²⁰ focuses on various issues of sanitation and personal hygiene. It is widely accepted that sanitation is an important index of socio-economic development. Low sanitation levels lead to a host of diseases, making sanitation a key public health issue and concomitant of a clean water supply. Based on field work done in two urban slums of Hyderabad, Andhra Pradesh, this study points out that sanitation consist of much more than defecation issues and that it converges on several important aspects of life, such as shame and dignity and personal hygiene. The study presents various aspects of personal hygiene and also looks at the different sanitation tasks performed by women and men. Women themselves defined what

¹⁹ Susan E. Chaplin, *The Politics of Sanitation in India: Cities, Services and the State*, Orient BlackSwan Pvt. Ltd. New Delhi, 2011

²⁰ B. Suresh Reddy and M. Snehalatha, *Sanitation and Personal hygiene: What Does it Means to Poor and Vulnerable Women?* In *Indian Journal of Gender Studies*, Vol. 18 (3), Sage Publications, New Delhi, 2011, pp.381-404

appropriate sanitation is. Cleaning tasks are primarily performed by women who receive little support from men. The study argues for the need to give women a central role in decision-making, designing, planning and implementation of sanitation programmes. The study sums up the basic steps required to address major sanitation and hygiene issues of poor women in the cities.

A study by Jha (2013)²¹ reveals that India has developed in many areas, but the practice of open defecation and manual cleaning of human excreta from bucket privies by scavengers continues unabated. National sanitation coverage is only about 34 per cent meaning that 66 per cent of the population practices open defecation. Such unhygienic conditions lead to infections and high mortality and morbidity in the community. Low sanitation coverage could be due to lack of affordable sanitation technology and awareness or motivation. Although the sewerage system has been introduced in India, high operational and maintenance costs have prohibited it from being implemented in most town and cities. Similarly, the cost of a septic tank is beyond the reach most people, and disposal of undigested sludge from septic tanks remains a problem. Therefore, the study suggested installation of pour-flush two-pit toilet (known as Sulabh Shauchalaya) which is low cost, socially acceptable and technologically appropriate as it does not require scavengers to clean the pits. This will particularly help socially deprived groups and reduce the financial burden of the local government. Moreover it will improve the health and hygiene of the socially deprived communities.

A study by Bassi and Kumar (2012)²² holds that fast urbanization and population pressure have greatly impacted water supply systems in Indian towns. In many Indian cities, the problem of water scarcity is acute and most of the challenges of water supply and environmental sustainability are still unanswered. The condition is even worse for

²¹ P.K. Jha, *Health and Social Benefits from improving Community hygiene and sanitation: an Indian experience*, in International Journal of Environmental Health Research, 13, June, 2013, pp. 133-140 (accessed on 09 March, 2015)

²² Nitin Bassi and M. Dinesh Kumar, *Addressing the Civic Challenges Perspective an Institutional Change for Sustainable Urban Water Management in India*, in Environment and Urbanization ASIA 3(1) Sage Publications, New Delhi, 2012, pp.165-183 (accessed on April 09, 2014)

informal settlements and slum in these urban areas where basic water and sanitation infrastructure is altogether missing. The study suggests that in order to meet these growing challenges, the present scenario of the public water supply system needs overall reforms, targeted towards improving the institutional, administrative, managerial and financial aspects related to urban management. The study highlighted that institutional change will involve one or a combination of organizational change measures comprising decentralization, private sector participation and community-based management and human resource development. For authors all these institutional changes together can equip Indian cities better for averting risk in the face of rapid urbanization, climate change and water scarcity.

A study by Gopakumar (2010)²³ focuses on the role of Public-Private Partnerships (PPP) in transforming existing water supply regimes in developing cities. The study argues that by bringing private actors and civil society groups into infrastructural delivery the expectation is that partnership efforts can make water supply systems more participative and democratic, which in turn can enhance access of different groups in society to essential services. The author also argue that such a characterization disregards the role of social and political context that, to an extent guide the role of PPP efforts in transforming water supply regimes. This study sketches five cases of water supply and sanitation partnerships located in three metropolitan cities in India viz., Bengaluru, Chennai and Kochi. The study concludes that PPP do play a role in making water supply regimes more participative but that depends on the nature of the regime as well as the actions of partners.

²³ Govind Gopakumar. *Transforming water supply regims in India: Do public-private partnerships have a role to play?*, in *Water Alternatives* 3 (3): 2010, pp.492-511,(accessed from www.water-alternatives.org on 30 March, 2014).

Table 1.1: Reviews on Urban Water Supply and Sanitation Facilities in Guwahati City

Author	Year	Focus of Study	Key Findings	Suggestions
Kamlesh Kalita & Aswini Kr. Baruah	2001	Problems of Potable Water in Guwahati City	The study reveals that the present requirement of potable water in the city is 150 million liters per day whereas only 55 million liters of the same is being supplied. The irony of the fact that for the remaining 95 million litres the residents of the city are facing a number of problems. They have no other alternative but to depend on private sources like tube wells, deep tube wells and the Brahmaputra river –in which potable question raises serious doubts. Moreover, in Guwahati city over exploitation of ground water through modern means of well installation and pumping arrangement is the root cause of decreasing ground water levels in various areas.	The city of Guwahati and its surrounding areas receive abundant rainfall. Arrangement may be made to store this water for domestic use through proper harvesting which would solved the problem of drinking water to a considerable extent. Moreover evaluation and regular monitoring of the water supply system of the city would help the system become more effective and efficient.
H. Nath, D. Bhattacharjee & S. Bezbaruah	2001	Water Supply in Greater Guwahati Problems and Prospects	The study reveals that present water supply situation in Guwahati by and large is alarming and is worsening rapidly due to intermittent supply, leakage of water in the distribution system, lack of laboratory facilities for water testing, irregular power supply which affects water pumping, insufficient funds for maintenance activities and poor tariff level.	The capacity of existing treatment plans can be increased to its installed capacity by renovating the plant. All leakages which are evident or repeated must be rectified within a time frame of one month by the service providers in their respective jurisdiction. Present water tariff collection system is required to be reviewed and improved to meet water supply

				operation and maintenance. A properly equipped centralized water testing laboratory having facilities for complete physical, chemical and bacteriological examination of water should be established.
Dr. Prasanta Bhattacharya and Rajashree Borah	2014	Drinking Water in Guwahati City: Its Past, Present and Associated Problems	The drinking water needs of the majority of the population in the city are at present fulfilled by the municipality through piped supply or water supplying tankers. However, the quantum of supplied water is quite limited and irregular and there is a mis-match between demand and supply. Under such circumstances, many private agencies fulfill the demand to a great extent. Over-exploitation of ground water by such agencies has caused public resentments in some localities of the city.	Reliance on ground water should be minimized by giving emphasis on the use of the river Brahmaputra as the main source of drinking water. Moreover, rain-water harvesting may also be encouraged among the city residents to face the challenge of water deficiency.
CRISIL Risk and Infrastructure Solutions Limited (under MoUD, Govt. of India)	October 2013	Draft Report on Capacity Building for Urban Development Rapid Baseline Assessment- Guwahati City	Urban planning functions have been partially transferred from GMDA to GMC. However on a day today basis GMDA is largely responsible for urban planning including Master Planning. GMDA over powers GMC in most domains of infrastructure provisioning which is in conflict with the 74 th CAA. Despite the fact that GMDA has been merged with GMC on paper, it continues to operate as an independent entity because of the nature of its skills and expertise.	There is a need for undertaking an assessment of the existing institutional structure for urban governance in Guwahati to assess gaps, overlaps and duplication of function between various organizations. There is also a need for undertaking an institutional development study of GMC to assess the manpower and skill requirement keeping in mind the role that GMC will

				play in the future when all of the 12 th schedule functions are transferred and handholding support from various agencies (ADB, JNNURM) ends. GMC also needs to review its office structure and assess the need for an integrated office complex for improving overall management efficiency.
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1.3. Research gaps identified from the Review

The review of literature indicates the following research gaps:

First, it is no secret that a vast amount of literature exists on urban governance, water supply and sanitation in India but the service delivery system related with water supply and sanitation in Guwahati City does not find any place in these studies. Second, another set of studies focused about public-private partnership in the delivery of urban services but it is very rare to get a study the perception of people on the service delivery system in Assam. Thirdly, none of the studies examines the delivery of water supply and sanitation in the context of urban governance. Further, there is very less literature existing on Guwahati Municipal Corporation after the 74th Amendment Act which may be considered an important issue. This is important because, this Act devolves power to the corporation by consideration the global trends towards urban governance to make corporations as pro-people institutions. At this juncture, it is essential to know whether organizational and institutional arrangements for the Guwahati City have made any significant contribution in the delivery of services with reference to water supply and sanitation. As urban governance is an important trend to development, it is essential to know whether urban governance has promoted development with reference to effectiveness, equity and sustainability in the delivery of services. Therefore, there is an imperative need for an in-depth study focusing on these areas.

1.4. Research Issues Raised

First, what are the institutional arrangement available for delivery of water supply and sanitation in Guwahati city? To what extent are these institutional arrangements truly effective to ensure service delivery? If they are not effective what are the constraints on delivery of services? If there is any constraint how can it be eliminated?

Second, to what extent does urban governance deliver services effectively, equitably and sustainably? If it does not achieve its goal, what are the constraints? What other factors can contribute to deliver effective, equitable and sustainable services?

It is with these assumptions that a study has been proposed here to examine the relationship between urban governance and service delivery in the context of Guwahati City, Assam. The problem considered for the present study is “Urban Governance and Service Delivery in Assam: A Study of Water Supply and Sanitation in Guwahati City”.

Thus, the present study attempts to know whether municipal agencies have made any significant contribution in the delivery of services with special reference to water supply and sanitation in the Guwahati city. As urban governance is an important trend related to the process of development, it is essential to know whether urban governance has promoted development with reference to effectiveness, equity and sustainability in the delivery of services. Therefore, there is an imperative need for an in depth study focusing on these areas.

1.5. Objectives of the study

The objectives of the present study are-

1. To study the organizational and institutional aspects in the delivery of services in Guwahati city.
2. To assess the implications of governance in terms of efficiency and equity for water supply and sanitation in Guwahati city

1.6. Research Questions

In order to fulfill the objectives, the following research questions have been framed.

1. What are the institutional arrangement available for delivery of water supply and sanitation in the city?
2. Does the majority of populations in the area under observation have access to safe drinking water and what are the sources of drinking water available to them?
3. Are the present water supply systems of the city quipped to meet the requirement of water in the city?

1.7. Concepts and Operational Definitions

The concepts and operational definitions relating to the study are as follows:

List of Terms Used

Urban Governance: Urban Governance is derived from the concept of governance in relation to urban areas to be reflective of how the various constituents of public service delivery are organized to increase the welfare of citizens. Governance in urban areas may be described in the words of UNHABITAT (2002) “as the sum of many ways individual and institutions, public and private, plan and manage the common affairs of the city.” It is a continuing process through which conflicting or diverse interests may be accommodated and cooperative action taken. It includes formal institutions as well as informal arrangements and social capital of citizen. Thus, as a concept urban governance goes beyond government. It includes the mechanism, institutional structures and processes through which decision affecting the welfare of the citizen and stakeholders are taken. For the purpose of the present study, the institutional arrangements of urban local governance concern with the local self-government in urban areas.

Service Delivery: Service implies that something is going to be delivered in a certain way. In the present study public services would refer to those services provided by the governments (local, municipal, or national) to the public. The need for services that no

individual can or will pay for, but that benefit all by their presence, is one of the justifications for taxation. Public service delivery is the implementation of those services and making sure they reach those people and places they are intended for. Service delivery maintains the expectations of the public relating to the service up till the service has not been delivered and also making the public delighted by the satisfaction. It is simply delivering the services effectively and efficiently to the public.

Water Supply: Water Supply means facilities for bringing drinking water to a community through reservoirs, aqueducts, tunnels and pipelines. Water Supply is the provision of water by public utilities, commercial organizations, community endeavours or by individuals, usually via a system of pumps and pipes.

Accessibility of Water Supply: Accessibility is assessed in terms of access to improved water source which implies to the percentage of the population with reasonable access to an adequate amount of water from an improved source, such as a household connection, public standpost, borehole, protected well or spring, and rain water collection. Unimproved sources include vendors, private tanker, *kuccha* wells and unprotected wells and springs. Reasonable access is defined as the availability of at least 20 litres per person per day from a source within one kilometer of the dwelling (ADB et al 2005:46).

Sanitation: In the present study 'sanitation' would refer conditions relating to public health, especially the provision of clean drinking water and adequate sewage disposal. The World Health Organization (WHO) states that: "*Sanitation generally refers to the provision of facilities and services for the safe disposal of human urine and feces. Inadequate sanitation is a major cause of disease world-wide and improving sanitation is known to have a significant beneficial impact on health both in households and across communities*". The United Nations Development Programme (UNDP, 1998) defines sanitation as "*safe disposal of solid waste and liquid waste and maintaining a clean environment which promotes the health and hygiene of the community.*"

Slum: There is no common and authoritative definition of a slum. Most of the definitions are comparative and mostly based on empirical defined in terms of more or

less accurately observed consequences. Different cities from different countries have their own nomenclature. Urban slums are usually understood as places where conditions of housing fall much below the general standards of living. The term slum, therefore, is comparative and means various things in different contexts. The above discussion clearly reveals the fact that slum is an evaluative term and not an analytical concept. The definitions, however, reflect clearly the physical and social image of the slums.

Slum Pockets: The Government of India (1988, p. 5) defines slum pockets as “housing that is unfit for human habitation or detrimental to safety, health and morals of the inhabitants.” Physically, slums consist of clusters of hutments comprising several rooms constructed with building materials where each room is inhabited by a family sharing a common latrine without the arrangement for water supply, drains, disposal of solid waste and garbage within the slum boundaries. Apart from degrading environmental conditions, slums in the urban settlements are also characterized by an almost total absence of community and recreational facilities.

Notified Slums: Urban areas notified as slums by respective municipalities, corporations, local bodies or development authorities. (NSSO 2002).

Non-Notified Slums: A compact urban area with a collection of poorly built tenements, mostly of temporary nature, crowded together usually with inadequate sanitary and drinking water facilities in unhygienic conditions, if at least 20 households lived in that area (NSSO 2002).

Jawaharlal Nehru National Urban Renewal Mission (JnNURM): JnNURM, a mission mode programme, aims at creating ‘economically productive, efficient, equitable and responsive cities’ by a strategy of upgrading the social and economic infrastructure in cities, provision of Basic Services to Urban Poor (BSUP) and wide range of urban sector reforms to strengthen municipal governance in accordance with the 74th Constitutional Amendment Act, 1992. JnNURM was launched on 3 December 2005 to encourage cities to initiate steps to bring about substantial improvement in the existing service levels in a financially sustainable manner. The mission is the single largest initiative of the

Government of India for planned urban development that integrates the two pressing needs of urban India: massive investments required for infrastructure development and reforms that are required to sustain investments. The JnNURM has two submissions for mission cities, namely, (a) Urban Infrastructure Governance (UIG) and (b) Basic Services to the Urban Poor (BSUP). Since inception, the JnNURM mission has focused on sectors, such a water supply, sewerage, drainage and urban transport under the UIG component. Besides attempting infrastructural development (ID) and reform in governance in the 65 selected cities through its ID components, JnNURM is also expected to provide the poor in these cities with access to basic services and land with tenurial security through its other component, the BSUP. Sixty-Five cities have been selected under this mission including Guwahati city from Assam.

74th Constitutional Amendment Act, 1992: The most significant policy change in the urban sector came in the form of the 74th Constitutional Act, 1992 which aims at decentralization of urban governance in the country. Eighteen functions to be performed by the ULBs have been identified under the 12th Schedule of the Indian Constitution. The act aims at- a transformation in the ‘structure’ of urban service delivery. This Act is a landmark initiative of the Government of India to strengthen urban local self government in cities and towns.

Household: The concept of household is based on the arrangements made by persons, individually or in groups, for providing themselves with food or other essentials for living. A household may be either: (a) one person or (b) a multi-person household (UNCHS 2001: 59).

1.8. Methodology

A. Area of Study

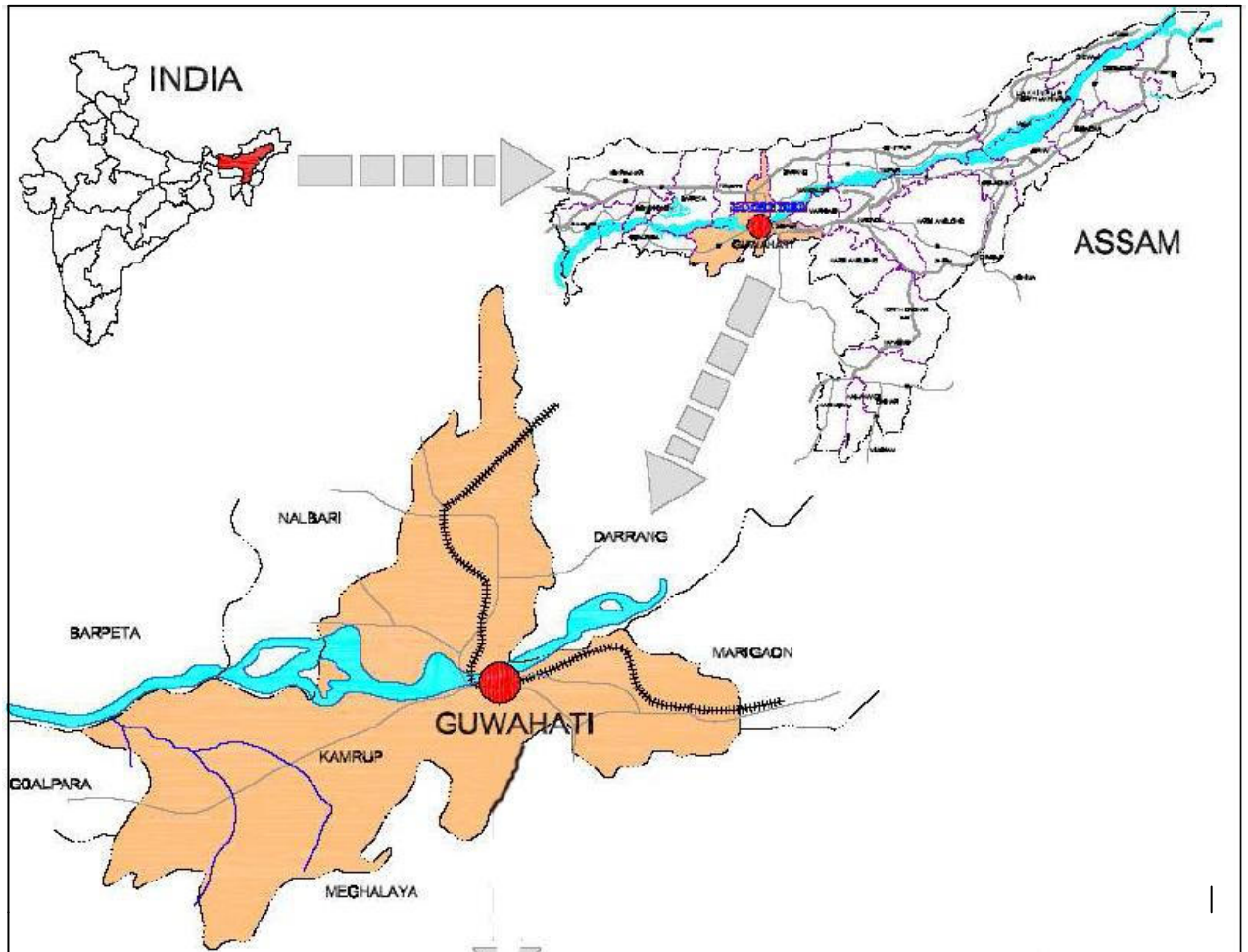
Guwahati, the capital city of Assam is selected for the present study. The city is located on the crescent-shaped southern bank of the river Brahmaputra, in the Kamrup Metropolitan District. The foothills of the Shillong plateau lies to its south, with Lokpriya Gopinath Bordoli International Airport to the west and the town of Narengi to

the east. The core of the city is surrounded by hillocks of varying altitudes from 100 to 300 meters. The average altitude of the city is 54 meters from the mean sea level. The city extends from 26.5' N to 26.12' N latitude and 91.24'E to 91.51'E longitude. The stretch of the river Brahmaputra within the city area is 12.78 km. The river has been satisfying the basic needs of the people in many ways, being the only major source of water, mode of riverine transportation and scenic beauty.

Guwahati city experiences mild subtropical climate. The average rainfall is 2272.37 mm and about 90 per cent of it occurs between May and September. According to the 2011 census, Guwahati Municipal Area and Guwahati Metropolitan Area have a populations of 963,429 and 968,549 people respectively.²⁴ The municipal area is under the jurisdiction of the Guwahati Municipal Corporation (GMC) whose limits were last extended in 1991 to cover an area of 216.79 sq. km. The Guwahati Metropolitan Area covers about 262 sq. km. and is under the jurisdiction of the Guwahati Metropolitan Development Authority (GMDA). Our study is conducted in areas under the jurisdiction of Guwahati Municipal Corporation which comprises of 31 wards. Location of the Guwahati city is shown in the following map I.

²⁴ http://www.censusindia.gov.in/2011_census/population_enumeration.aspx (accessed on 02 February 2013).

Map I: Location of Guwahati City



Source: City Development Plan, Guwahati, 2006

Municipal agencies are the oldest units of administration in India. In the post-independence period, though more attention has been paid to administrative management of urban affairs through multiple agencies, municipal agencies, still occupy an important position in maintenance and management of urban services. After independence, the municipal administration in Assam was primarily entrusted with the urban development functions falling under the purview of the Municipal Act of 1956. The Act was instrumental in providing suitable organization and administration of municipalities in Assam to cope with the altered situation in the post- independence period.

The Guwahati Municipal Corporation(GMC) the first and then the only municipal corporation in the state was constituted at a time when the city witnessed its first phase of population explosion after the shifting of the capital from Shillong to Guwahati in 1972. The GMC Act, 1969 published in the Assam Gazette, dated 18th January, 1973 came into force with effect from 1.2.1974.²⁵ It provided that with the coming into force of the Act, the Municipal Act, 1956 shall cease to have effect within the city. Under section 7 of the GMC Act, the services to be provided by the Corporation are related to the provision and maintenance of drainage, water supply, garbage clearance, markets, roads, streets and bridges, parks and gardens dispensaries etc.

The GMC (Amendment) Act, 1994 inserted new clauses in section 8 of the Principal Act, that is the list of its discretionary powers, namely, urban planning including town planning; regulation of land use and construction of buildings; planning for economic and social development; slum improvement and upgradation and urban poverty alleviation. However, no notification or order was issued to transfer such functions and as such these have not been transferred to the Corporation as per the Twelfth Schedule of the Constitution of India.

The 74th Amendment Act, 1992 called for a new orientation in the existing municipal laws of the state. The State Governments were intimated by the Government of India to affect necessary amendments in the Municipal Laws in order to bring them in conformity with the Constitution Amendment Bill, 1991. The Bill provided for a period of one year to affect necessary amendments in all the Municipal Laws that were in force. To review the whole matter a Task Force was constituted as per the order of the Government of India in the states²⁶. The Government of Assam in the meetings of the Task Force expressed the view that some alterations would be made in the principal act. However, no move was taken to bring a comprehensive change in the municipal legislation. No directive was made to involve private sector in the delivery of municipal services, though

²⁵ Assam Act-I of 1973

²⁶ No. H. 11018/10/91-UCD (Vol.-IV), Govt. of India, Ministry of Urban Development, New Delhi, Dated 12th May,1993

the Central Ministry urged that “*the present opportunity should be availed of to bring about other changes in municipal laws to make them relevant to modern thinking of urban governance*” At present, urban basic services are provided only by government agencies in the Guwahati city.

The adequate public water supply and its coverage of the urban population is one of the vital components of urban affairs management policy.²⁷ The system of public water supply in Guwahati is administered through three major governmental organizations- the Guwahati Municipal Corporation (GMC), the Assam Urban Water Supply and Sewerage Board (AUWSSB) and the Public Health Engineering Department (PHE). There is an area- wise division of jurisdiction with respect to service delivery of these organizations. The GMC water supply scheme caters to most of the areas within the Corporation. The AUWSSB has undertaken the scheme of supplying potable water in East Guwahati part of the city since 1989. The PHE primarily serves governments buildings and installations. At present, the PHE serves four major campuses of the city. These are the Dispur Capital Complex, Gauhati University Campus at Jalukbari, Assam Agricultural University Campus at Khanapara and the Guwahati Medical College at Narakasur hills. The PHE also sells water on a commercial basis to the housing colonies of the Reserve Bank of India and the State Bank of India in Guwahati. There is the provision of buying water by private parties also.

Besides these organizations, some private agencies have also developed in the city since 1991. They have their own distribution system and supply water at the door steps of urban dwellers. This is a new trend of taking basic municipal service in the spirit of privatization.

Sanitation has direct links to environment, water supply, health and hygiene. Maintenance of sanitation involves the disposal of sewage, general conservancy and surface cleanliness. The Guwahati Municipal Corporation is the sole authority for sanitation as well as collection and disposal of the garbage in the city. Ever since, the

²⁷ John D. Herbert, *Urban Development in the third World. Policy Guidelines*, Praeger publications, 1979, p.69

state's capital shifted from Shillong to Guwahati, the city's territorial area has expanded but its physical growth has not been accompanied by corresponding expansion and improved efficiency in the provision of civic amenities, particularly sanitation and water supply. Guwahati's liability largely depends on efficient management of these public utilities. The problem of sanitation associated with steep influx of population in urban areas, therefore needs to be addressed, debated and deliberated at length, by the policy planners for the development of the city areas.

B. Data Collection

Field study has been conducted in Guwahati city from July to November, 2014. The information for the present study has been collected both from primary and secondary sources. Two sets of interview schedules have been framed for the purpose of collecting data- one set for the household of the wards of the city and the other for the slum dwellers. Both the sets include open and close- ended questions. In addition to these, personal interviews and focus group discussions were also conducted to consult with the ward councilors and concerned officials of GMC and AUWSSB responsible for the management of water supply and sanitation system for the city. Similarly, two Focused Group Discussions were arranged in the slum areas of the concerned wards in order to know the ground realities of the slum dwellers. Besides members of NGOs were interviewed who have been working in these areas.

For the collection of data from secondary sources libraries of Gauhati University (Krishna Kanta Handique Library), Omeo Kumar Das Institute of Social Change and Development (OKDISCD), Institute of Social and Economic Change (ISEC) , Bangalore have been consulted in addition to the Central Library of Assam University. Extensive use of internet has been made, including using e-books and e-journals, minutes of GMC meetings, Census reports, and clippings of news papers.

C. Sample Selection for the Study

The study was conducted in areas under the jurisdiction of the Guwahati Municipal Corporation (GMC) which comprises of total 31 wards. The study proposed a three - stage sampling for collecting primary data in Guwahati.

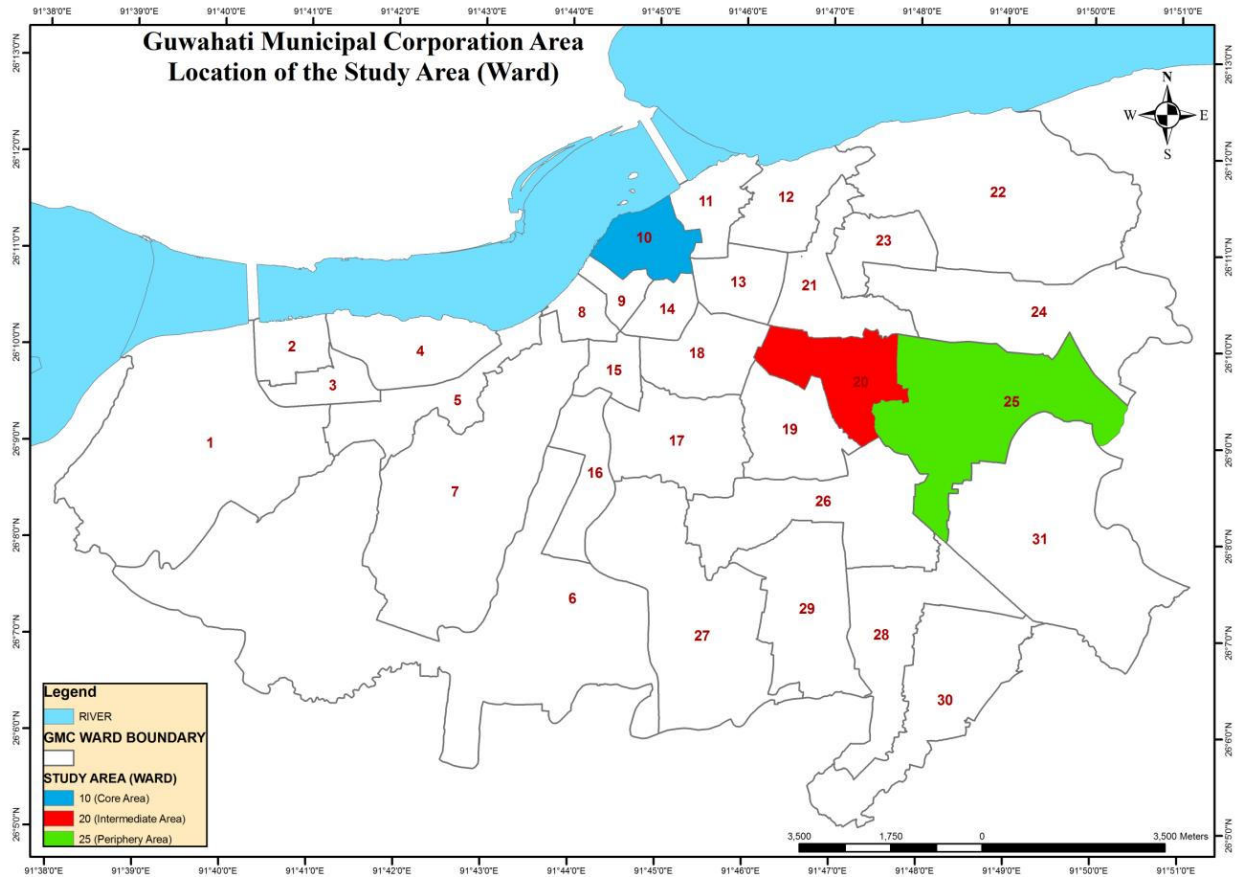
In first stage, 10 percent of the total wards that is 3 wards were selected purposively to represent the heterogeneity of the city as far as possible. Further, for selecting wards, three distinct attributes were taken into consideration- the core, intermediate and periphery areas. So, one ward was taken from each category for sampling. Ward No. 10 falls in the core of the city area, where the main water supply plant is located at Panbazar. Ward No. 20 was selected which is located in the intermediate area of the city, here a water treatment plant is located at Hengrabari. Similarly, Ward No. 25 was chosen located at a periphery area of the city.

In the second stage, emphasis was given on selecting localities on the basis of observation and available secondary information to represent different 'income groups' in each of the three wards. The areas were stratified as (i) Middle income (ii) Low income and (iii) Slums.

In the third stage, from each stratum, total 66 households were selected randomly. In other words, $66 \text{ HHs} \times 3 \text{ wards} = 198$ households were selected. Further, from each ward $66/2 = 33$ households were selected from each stratum of income group i.e., Middle Income and Low Income.

Locations of the study are (ward no. 10, 20 and 25) is shown in the following map II.

Map II: Locations of the Study Area (Ward)



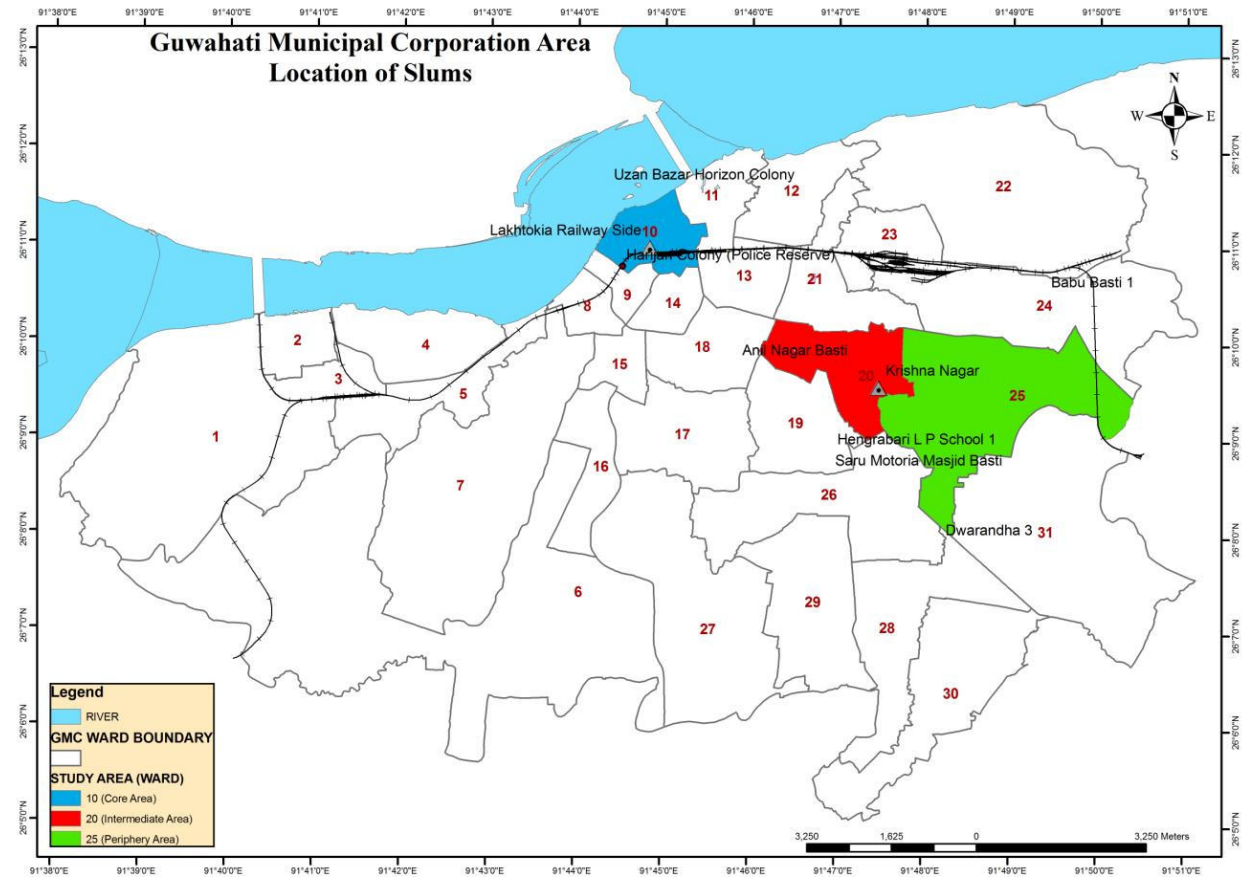
Source: Fieldwork

1.9. Selection of Sample for Slums

For the present study a sample of 96 households was selected from 12 Notified Slums of the three wards of Guwahati city. From each ward 4 Notified Slums were selected through purposive sampling. This sampling technique was used as it is generally observed that Notified Slums have better opportunities for accessing basic amenities as against Non-Notified Slums. Out of a sample size of 96, 32 households were drawn from each ward. Thus, 8 households from each notified slums (12) located in the three wards were selected to arrive at the total households of 96.

The notified slum pockets selected for study are shown in the following map III.

Map III: Location of Selected Slums in the Study Area



Source: Fieldwork

1.10. Chapterisation

The study has been divided into Six Chapters.

Chapter- I

Introduction

The first chapter provides the introductory information of the study, discusses the research problem, review of related literature and concepts and operational definition of

term. This also discusses the research gaps, research issues, objectives, research questions and methodology along with the chaptersiation of the study.

Chapter II

Urban Governance and Institutional Arrangements in Guwahati

In this chapter a brief discussion is made on the constitutional and legal provision of urban governments in India under the 74th CAA, 1992. This amendment act prescribes various institutions for the formation and operation of urban local governance in the states. The institutional arrangements for local governance are- State Election Commission, Municipalities, State Finance Commission, Ward Committees and other committees, are studied in this chapter. Besides, recent urban development programmes like Swachha Bharat Mission, Smart City Mission have also been are discussed.

Chapter III

Urban Governance and Service Delivery in Guwahati City

In this chapter, the demographic profile of Guwahati city is given. Also, the, spatial expansion of the city over the years has been discussed. This chapter deals with urban governance and service delivery in Guwahati city, the urban poor, urban local networks and civic groups in the city. This chapter also focuses on urban governance challenges in delivery of services like urban growth, institutional complexity and financial constraints.

Chapter IV

Delivery of Water Supply and Sanitation in Guwahati City

Chapter four explores field perceptions on water supply and sanitation facilities in Guwahati city. This chapter presents empirical data with regard to efficiency in water supply and sanitation facilities among the households at the ward levels of Guwahati city.

Chapter V

Delivery of Water supply and Sanitation in Slums of Guwahati City

Chapter five also presents field perceptions with regard to water supply and sanitation facilities for slum dwellers at the ward levels of Guwahati city.

Chapter VI

Major findings, Recommendations and Conclusion

The concluding chapter presents the summary of the study with its major findings. Besides, policy recommendations, scope for further research are also discussed in this chapter.