

**Creating Enabling Conditions for Sustained Reforms in Urban  
Water Sector: A Case for Legal Reforms in National Capital Region  
of Delhi**

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Paper prepared for the workshop entitled 'Legal Aspects of Water Sector Reforms'  
to be organised in Geneva from 20 to 21 April 2007 by the International  
Environmental Law Research Centre (IELRC) in the context of the  
Research partnership 2006-2009 on water law sponsored by the  
Swiss National Science Foundation (SNF)

## **ABSTRACT**

Radical reform of water sector is necessary for India's towns and cities to improve the quality of services needed to contribute maximally to the country's economic growth and to improving the well being of its people. Reform of the urban water supply is particularly urgent because without such reform fiscal resources will continue to be used sub-optimally and urban populations will continue depriving themselves of their full economic and civic potential. Experience over the last decade suggests an emerging global consensus on some key principles of institutional reforms like public private participation (PPP) in the delivery of Water supply services, Decentralization of service responsibility to the lowest appropriate levels, autonomous utilities, a community-driven and demand-responsive approach and restructuring of sector institutions.

India has a federal set up and administration of water supply is in the domain of state governments. Presently there is a multiplicity of overlapping laws, authorities and jurisdictions and gaps in state laws. No state or region has a comprehensive legal framework specifically for the water sector .The 74th Constitutional Amendment, mandating state government to transfer responsibility for water supply and sanitation (WSS) services to urban local bodies (ULBs), provides an opportunity to drive far-reaching reforms. State governments are in a position to articulate public service obligations that will accompany this devolution responsibility, define policies, provide fiscal and financial incentives, and offer technical support for ULBs to meet their service and financial obligation, particularly during the critical transition leading to complete empowerment of the ULB. They are also in a position to define the regulatory framework to ensure accountability and to balance relations between service providers and customers.

The legal, legislative and institutional issues related to the water supply becomes much more critical as the water is a state subject and the NCR region covering four states, have different institutional arrangements for water supply and drinking water in particular. It is important to assess the changes required in the legal framework for reforms in water sector and to evolve a regulatory framework for sustainability of water sector reforms at a regional basis.

This paper discusses NCR contemplation in urban water sector reform with particular emphasis on legal framework and structure delineating the overall gaps in the legislative, institutional and policy reforms needed for regional water management. The structure envisaged complements the institutional design being adopted by the water utilities in the region. This is consistent with the policy framework i.e the contract for service provision in a specified geographical area which would define public service obligation for all consumers.

The aim of the paper is to explore a sequential strategy for institutional reforms in water so as to evolve a policy framework for regulation in urban water delivery systems. The output can help in developing a generic policy strategy for water institutional reforms minimizing the transaction cost but maximizing the performance impact in a political economic constraint. The sequencing of these options can provide a valuable basis for institutional design and its sequential implementation of alternative policy instruments for legal reforms on a regional basis with possibilities of replication.

**Key words:** Law, institutions, water supply, reforms, regulations, Public Private Partnership, legislation, abstraction, environment, legal framework.

### **Acknowledgements**

The author gratefully acknowledges the support and guidance provided by Dr. Leena Srivastava, Professor and Dean at Faculty of Policy and Planning, TERI University, New Delhi. The author is also thankful to the organization HUDCO that provides valuable academic, financial and technical support in the efforts of the author.

# **Creating Enabling Conditions for Sustained Reforms in Urban Water Sector: A Case for Legal Reforms in National Capital Region of Delhi**

## **1.0 Introduction**

Water is a subtle mix of basic human needs, entitlements and is an economic good. The right to water is restricted due to ecological, economic and social constraints operating in geographical systems. Water sector reforms are advocated as a way to address diminishing per capita availability and increasing problems in water quality by improving governance in the water sector in developing countries.<sup>1</sup> Radical reform of water sector is necessary for India's towns and cities to improve the quality of services needed to contribute maximally to the country's economic growth and to improve the well being of its people. Reform of the urban water supply is particularly urgent because without such reforms resources will continue to be used sub-optimally and urban populations will continue depriving themselves of their full economic and civic potential.

In India, water is a state subject and water-sharing agreements are the instruments of state policy for the continuous availability of water between riparian states. The sector policy in water and its historicity indicates gradual shift in policy to meet the challenges. The National Water Policy 1987 emphasizes planning on the basis of a hydrological unit such as a basin or a sub-basin; the water policy of 2002 emphasizes 'projects'. The National Water Policy 2002 (NWP) recommends establishing systems based on river basins as well as improved information gathering about these areas to improve water resource planning. It also advocates for sustainable water projects and the development of groundwater reserves. Urban water systems, which primarily rely on surface water sources are now facing stress in delivering the quantity due to lack of clear allocations and growing conflict between riparian states.

Experience over the last decade suggests an emerging global consensus on some key principles of institutional reforms like public private participation (PPP) in the delivery of Water supply services, Decentralization of service responsibility to the lowest appropriate levels, autonomous utilities, a community-driven and demand-responsive approach and restructuring of sector institutions. The 74th Constitutional Amendment in India, mandating state government to transfer responsibility for water supply services to urban local bodies (ULBs), provides opportunity to drive far-reaching reforms.

In India, since independence, the State governments have provided the bulk of the capital for water supply systems and the state-level utilities own the assets and control such utilities. Given the new mandate by the 74<sup>th</sup> Amendment act, State governments are legally in a position to articulate public service obligations that will accompany the devolution responsibility by defining policies and provide fiscal and financial incentives to meet water resource and service environmental obligation. However,

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<sup>1</sup> See Philippe Cullet, Water Law Reforms – Analysis of recent developments (Journal of the Indian Law Institute (2006), p.206-231

majority of states in India (except Maharashtra, Andhra Pradesh and Delhi) have yet to redefine the legal and regulatory framework for implementing such changes.

In this research paper an attempt has been made to identify the manifestations of impending urban water crisis in National Capital Region of Delhi in the context of the emerging legal and institutional framework. This study is based on the stakeholders consultation carried out during my doctoral research. The paper deals with the impact of legal framework and institutional delivery mechanisms on the scarcity dimension. It also analyses policies relating to urban water delivery in India and the factors which hamper the sector effectiveness and the likely direction of reform design.

## **2.0 Framework of Water law In India**

The Constitution of India provides for a federal structure with distribution of powers between the Union and the various States. Article 245(1) of the Constitution of India provides that subject to the provisions of the Constitution, the Parliament may make laws for the whole or any part of the territory of India, and the Legislature of a State may make laws for the whole or any part of the State. Article 246(1) of the Indian Constitution prescribes that the Parliament has the exclusive legislative power with respect to any of the matters enumerated in List 1 of the Seventh Schedule to the Constitution (the “Union List”). Similarly, Article 246(3) of the Constitution confers on a State legislature exclusive power to make laws for such State or any part thereof with respect to any of the matters enumerated in List II of the Seventh Schedule to the Constitution.

The Indian Constitution divides responsibility for water resources between the National Government (the Union) and the states. The Union is responsible for “regulation and development of inter-State rivers and river valleys to the extent declared by Parliament by law to be expedient in the public interest.”. The central government role in the sector is centered on policy development and also influences public finance through instruments of taxation and fiscal incentives .

Administration of water supply and sewerage services is within the domain of State legislatures and governments, in terms of Articles 246 & 167 read with entries 6 and 17 of the List II of schedule VII to the Constitution of India explicitly define water use as a subject in the state list. Default responsibility, therefore, lies with the State governments, who are responsible for “water supplies, irrigation and canals, drainage and embankments, water storage and water power”. The exceptions to the jurisdiction of the state legislature, under the Constitution of India, in relation to water are:

- Regulation of development of interstate rivers to the extent such control of development has been declared by law to vest with the Union;
- Law relating to adjudication of disputes relating to interstate rivers and
- Territorial waters.

Sequential to the above devolution, the state governments have jurisdiction over various aspects of Water, such as ownership; planning and implementation of water works schemes, supply of water, contracting, levy and recovery of taxes, fees and levies defined through state acts and executive orders.

The 74<sup>th</sup> Amendment to the Constitution of India for the first time introduced the 3<sup>rd</sup> tier of urban government (Part IX-A), obliging state governments to constitute Urban Local Bodies (ULBs) in the form of Nagar Panchayats, Municipal Councils Or Municipal Corporations, depending on the size and population of the urban area. Under the Act, states were obliged to constitute and empower planning agencies at the municipality, metropolitan area, and district levels to take over functions devolved to local governments and were obliged to constitute state finance commissions to support fiscal decentralization.

The 74<sup>th</sup> Constitutional Amendment mandates state government to transfer responsibility for water supply services to urban local bodies (ULBs). Amendment (74<sup>th</sup> Constitutional amendment, article 243-W and twelfth schedule) to the Constitution specifies that water supply (domestic, industrial and commercial), public health, sanitation, conservancy and solid waste management are responsibilities of the Local Bodies (Municipal Corporation, Councils, and other forms of self governance). Provision of services, operations, maintenance, and determination of user charges, collection, and up gradation of services are responsibilities of the Local Bodies. This is meant to provide a framework for decentralizing decision-making to the lowest level and to all 'beneficiaries and other stakeholders' to be involved from the project planning stage. Constituting the ULBs is obligatory under the Constitution, the scope and extent of the powers to be devolved upon the ULBs is left to the discretion of the state governments. Few states have fully implemented the structure of the 74<sup>th</sup> Amendment though all have ratified these and passed laws to that effect. As a result, in many states, significant elements of the legal structure for municipal administration are either inconsistent or only partially compliant with the letter and spirit of the 74<sup>th</sup> Amendment.

As a major step towards the reform of the water sector, the Ministry of Urban Development and Poverty Alleviation has proposed the formulation of a model municipal law which tries to answer the concerns that currently plague the drinking water sector in urban areas. This provide for the following:

- Re-organization of the water supply sector setting out the separation of powers and the respective roles, functions and powers of key stakeholders.
- Institutional restructuring to develop and implement private sector participation in different formats which may extend to more than one urban local body.
- The regulatory framework governing economic and performance regulation so as to balance conflicting interests of the various stakeholders;
- Transition of the sector to viability with effective public private partnership and establish cost-reflective tariffs while securing access to the poor.

These reform measures need to be debated in the overall framework of democratic decentralization, as presently there is a multiplicity of overlapping laws, authorities and jurisdictions and gaps in state laws. No state or region has a comprehensive legal framework specifically for the water sector. This is further compounded due to the fact that municipal services and activities have created multiple jurisdictions.

### **3.0 Trends In Research Carried out in NCT, Delhi**

The research work carried out in and around Delhi intended to capture subjective opinion of experts, stakeholders and consumers for need assessment and opinion on reforms in the sector with the hypothesis that the existing water supply institutions have failed to deliver water supply in an efficient, equitable and sustainable manner and introducing alternative institutions in the water supply sector requires change in the existing institutional, legal and regulatory structure. In-depth interviews with Resident Welfare Association Leaders, Slum leaders, Self-help groups, officials of Water utility, Academic Researchers, Stakeholders, Water tank operators, private suppliers were carried out.

The empirical results obtained after analyzing the expert and stakeholder opinion indicate that state does have a social and merit obligation. This feeling is quite dominant in a developing city context. The negative preference after introduction reversal shows that despite good water people are still very volatile about costs being imposed beyond a limit. The results provided a limited support for hypothesis that poor services may force respondents to select private sector as the choice. The following policy conclusions emerged from the research:

- Concerns of the distributional effects of reforms with private sector participation overshadow consideration of the positive efficiency gains.
- Public acceptance of reforms is high but low for privatization because of price and various non-economic factors like political economy, negative campaign, awareness
- Increasing polarization between stakeholders about the appropriate institution and opinion is divided on divestiture..
- Important institutional, legal and regulatory structures for implementing sector reforms are not in place
- The economic theory and its manifestation in public policy for reforms in water is too large.

Therefore it was imperative to hypothesize that it is the instruments of reforms rather than organizational forms, which are key to sustainability of reforms in water sector. An incentive based approach changing the role of state and designing of policy instruments can help in reforms. We came to the conclusion that institutional choice is not only about specifying decisions based on different actors, but also determining the rules that governs the way that these choices are adopted in policy design. The new direction of reforms therefore can adopt institutional choices via:

- Choosing institutional forms of delivery in local spatial context
- Choosing policy tools which reform the legal framework of reforms

The basic tenet of designing policy in this context will be the compatibility of decentralization of reforms and regulation objective whereas municipal decentralization is the stated policy of the government .The contradictions in the objectives of the 74<sup>th</sup> Amendment Act and the policy of reform can create centralized regulatory agency due to transaction costs associated with such a change. This will

require reinterpretation of the legislation especially for smaller municipalities. It is therefore important to assess the changes required in the legal framework for reforms and to evolve a regulatory framework for sustainability of water sector reforms at a regional basis.

#### **4.0 Context Of Institutions**

NCR is endowed with four perennial rivers namely the Yamuna, Hindon and Kali passing through it and the Ganga skirting its eastern boundary but is a water scarce region. Main sources of water supply in the Region are surface and ground water e.g. rivers, canals, tube wells, hand pumps and open wells. The following four types of institutional set-ups exist in these four states:

- Water supply system managed completely (Development as well as Operation & Maintenance) by the State Government through its Public Health Engineering Department (Rajasthan and Haryana).
- Water supply system managed completely (Development as well as O&M) by the Municipal Corporation (Faridabad in Haryana).
- Water Supply Scheme/ project development by a state level institution on behalf of the municipal agencies and operation and maintenance by municipal agencies (like in Uttar Pradesh, the responsibility for development and O&M are divided between U.P. Jal Nigam and Municipal Agencies)
- Independent and semi-autonomous institution responsible for managing the entire functions related to water supply (Delhi Jal Board in case of Delhi)

There are certain elements/ characteristics related to water supply management, which are common across all the states. The legal, legislative and institutional issues related to the water supply in the NCR region covering four states becomes critical as different institutional arrangements for water supply exist and responsibilities for water supply are also fragmented. Undue emphasis is on new resource development rather than improving distribution systems and operational management and thus their lacks clarity of objectives.

The few recent initiatives undertaken have focused on some of the institutional issues for better service delivery. An overview of issues in these projects indicates that scope and framework of reforms through private sector participation is at a nascent stage. Critics of this model of development have argued whether a transformation of existing public sector institutions perform the role or is that the growing emphasis on market based solutions weaken the already weak public institutions (Mehta 2000). With an uneconomic rate structure and pervasive use inefficiency and wastage in urban water sector unbridled privatization are likely to conceal inefficiency, damage incentive structure for urban water supply (Saleth and Dinar 1999). The present legal framework also does not provide significant elements necessary for successfully undertaking diverse formats of public cooperatives and Private Sector Partnership. This fact is further accentuated, as a number of states do not have a specific law regulating water supply for domestic and industry using Partnership .

The need therefore is to adopt reforms through reconstruction of the legal and regulatory framework based on principles of federalism and decentralization in an overall basin context. A comprehensive rethinking of reforms based on experience from other sectors and subjective opinion of all the stakeholders is a critical need for redesigning of reforms.

### **5.0 Review Of Legislations Affecting Urban Water in the study area**

The water sector in the region remains under state regulation. Certain legislations have been enacted by the central government, which has been adopted by the state governments. The existing water law framework is characterized by the co-existence of a number of different principles, rules and acts adopted over many decades. These include common law principles and irrigation acts from the colonial period as well as more recent regulation of water quality and the judicial recognition of a human right to water.<sup>2</sup>

Two types of law govern the urban water delivery in the region–

- The law constituting the municipal authorities in which the municipal authorities are vested with the power to provide water for domestic and industrial purposes within their jurisdiction it is the municipalities that regulate all aspects thereof from the establishment of water works, distribution systems, grant of connection, supply, metering and billing
- The law specifically constituting a water supply and drainage board, which is an authority, constituted to undertake the regulation for provision of water for domestic and/or industrial purposes in specified areas.

As water supply and sanitation services fall under the larger Urban Systems, it is also important to consider town planning, urban planning and regulation of land use, which are State subjects. State Governments has its own legislation on Urban Planning and Development, Regulation of Building Operations, and Municipal affairs. In addition, Water (Prevention and Control of Pollution) Act, 1974 is an important environmental legislation applicable uniformly across most States of India and has important bearing in the legal framework.

The following legislations have strong bearing in water resources, management and distribution among users in the NCR Region:

- Inter State Water Disputes Act 1956.
- River Boards Act 1956
- Indian Easement Act 1882
- Environment (Protection) Act 1986
- National Water Policy 2002
- Yamuna Water Sharing Agreement [May 1994/Nov 2002]
- Water (Prevention and Control of pollution) Act 1974

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<sup>2</sup> See Philippe Cullet, Water Law Reforms – Analysis of recent developments (Journal of the Indian Law Institute (2006), p.206-231

- The Delhi Water Board Act 1998
- State Water Policy
- Legislations for ground water abstraction (CGWB, Delhi Jal Board)

The analysis of these acts has been regrouped in the following sub heads:

**Irrigation Act:** Majority of the states have enacted a specific law governing irrigation making it mandatory to seek the approval of a specified authority for obtaining a right to draw water, from a water body within the state. This become a very critical legislation for determining the very right to draw and treat water from a water body for the purpose of supply within a specific area. If the state has not enacted any law relating to irrigation or the control of drawl of water from the water bodies within the state, the state government through executive action has vested drawl rights of water from the water bodies.

**Water Supply and Drainage Board Act:** Majority of the states have enacted a specific authority to plan, undertake and approve projects for the supply of water to specific notified areas and is termed as a Water supply and Drainage Board Act. This has helped in establishment of drinking water infrastructure across states but has also created a technocratic system to handle water systems.

#### **Abstraction Of Ground Water**

There are no de jure rights in ground water, but de facto, all landowners have the right to ground water underlying their land. This is the product of a set of colonial rules. *The Easement Act (1882)* allows private usufructuary rights in ground water by viewing it as an easement inseparably connected to land. The Transfer of Property Act 1882 provides that easement to ground water can be given only if the dominant heritage land is also transferred. Conversely, the Land Acquisition Act asserts that if some one is interested in getting rights over the ground water, he would have to be interested in the land. Thus, ground water is viewed essentially as a chattel attached to land. There exists, at the same time, no limit to how much water a land owner may draw, in contrast to a legal structure that specifies well-defined property rights setting absolute limits to collective and individual withdrawals. The legal framework is thus conducive neither to equity nor to sustainability. Some efforts at legislation have been made through the Model Ground Water Bills of 1970 and 1992. The central focus of these bills has been the creation of a ground water authority comprising essentially representatives of the government for giving clearances for the installation of water extraction structures. These provisions seek only to regulate the creation of water extraction mechanisms rather than the quantum of water withdrawn and therefore are challenging issues for water sustainability.

**Municipalities Act:** Each state has a specific law constituting the municipal authorities that have jurisdiction over urban centers notified in accordance with the provisions thereof. These laws are generally termed as the Municipal Act or the District Municipalities Act or the Nagar Palika Act or other similar name. These laws generally provide for the establishment of any water supply project for an urban center as these legislations vest the complete authority and jurisdiction over all urban amenities, including water treatment and supply with the municipal authority.

However, these laws do not provide for the vesting of the right to establish water works or supply water to the areas within the jurisdiction of the municipal authority.

**Town Planning Act/Urban Development authorities Act:** Most of the states have enacted laws to establish development and planning authorities, having powers over any development activity in the area under their jurisdiction. These laws generally mandate that a project be part of a development plan or be sanctioned and undertaken, in accordance with the sanction of the development/planning authority. These laws also regulate the use of land in towns and urban areas. Some of such laws actually vest all land for the purposes of development with the development authority in its jurisdiction conferring the right to draw water also.

**Environment (Protection) Act, 1986:**

It is the umbrella legislation providing for the protection of environment of the country. This act also provides for the Environment (Protection) Rules, which were formulated in the year 1986. Under the Environment Protection Act, 1986 the developmental project requires clearances from the State Pollution control board and the Ministry Of Environment And Forests, thereby exercising development control over the jurisdiction. The Environment Impact Assessment Notification, 1994 and the various amendments thereto have been notified under this act. As per the amendment no formal environmental clearance is required for the water supply project from the ministry, if the water is not passing through environmentally sensitive areas as reserved forests, wildlife sanctuaries, biosphere reserves etc.

**Water (Prevention and control of pollution) Act, 1974:** It is an enabling statute for controlling the pollution of water resources and has resulted in the establishment of the Central and State level Pollution Control Boards whose responsibilities includes managing water quality and effluent standards as well as prosecuting offenders and issuing licenses for construction and operation of certain facilities. This act has created a structure which runs parallel to the development of water activity..

**Yamuna Water Sharing Agreement (May 1994) :** Memorandum of Understanding between U.P., Haryana, Rajasthan and NCT of Delhi regarding allocation of surface flow of Yamuna so as to maximize the utilization of the surface flow of river Yamuna. The Upper Yamuna River Board will regulate the allocation of available flows amongst the beneficiary states, provided that in a year when the availability is more than the assessed quantity, the samples availability will be distributed amongst the states in proportion to their allocations. This water sharing agreements had by and large not functioned properly for supply of water amongst competing uses and cities on the basis of water demand. The essence of water disputes in the region is this conflict of interests between riparian states, sector priorities and dynamic socio economic profile in the region.

In a nutshell, all the current laws deal with diverse urban services and have created multiple bodies and jurisdictions. State government have jurisdiction over various aspects of Water development such as ownership; planning and implementation of water works schemes, supply of water, contracting, levy and recovery of taxes, fees and levies etc. However, existing laws in most States do not specify what this responsibility entails for urban systems, not do they envisage any clear role for water

management and governance in an urban context. On the one hand, the legal rights and authority to provide water seem to rest with municipalities the federal constitution gives the state the responsibility over services of ‘local interest’, raising definitional issues relating to initiation of reforms. Authors have also argued that water sector reforms need to be based on decentralization and participation that involves water users is completely lacking.

The overall analysis and the increasing demand supply gap indicate that conflict resolution amongst riparian states, centralization tendency in water law and policy by the state government, legal disjointedness/integration, lack of user participation policy and water entitlement and abstraction rules are the key issues and are lacking in the present framework hampering the sector sustainability and performance of the sector.

## 7.0 Framework In Delhi

The local body in Delhi is governed by two important legislations viz Delhi municipal corporation act 1957. Delhi Jal Board is responsible for supplying potable water and sewage services. The board is a statutory body and has a wide range of powers, which allow it to install infrastructure, provide water services and restrict the use of water (such as for health reasons). Water sector in Delhi is inter-alia also regulated by the state legislations. These acts specify the governance framework, the spatial jurisdiction and the functional domain of the local body.

These are tabulated as under:

Agency	Legislation
Delhi Municipal Corporation,	Delhi Municipal Corporation Act, 1957 revised in 1994
Delhi Water Supply & Sewerage Board (Delhi Jal Board)	Delhi Jal Board Act , 1998
Delhi Pollution Control Committee	Water Prevention & Control of Pollution Amendment Act, 1974
Delhi Development authority	Delhi Development Authority Act,1957

Source: Various Institutional Papers.

In addition Water abstractions are regulated by the Ground water extraction act. Water abstraction rights are also not well defined in the NCR developing cities. The informal sector is abstracting water from wells dug illegally in water-scarce area, leading to over-abstraction and rising resource costs.

Drinking water supply in Delhi which was earlier governed by the Jal Board Act 1998 provided for the establishment of a Board to discharge the facilities of water supply, sewerage and sewage disposal and drainage in Delhi under a state legislation. The proposed reform legislation, The Delhi water and Waste water reform bill 2003, which is still on paper, proposes for the constitution of a regulatory commission for

the water and waste water, reorganization of the sector, rationalization of tariff, increasing avenues for participation of the private sector and taking measures to develop and management of water and waste water sector in an efficient and competitive manner in Delhi. The draft reform bill seeks to change the sector structure and regulation through enabling provisions for promoting partnership among communities and private sector participation. The reform strategy as per the draft enabling act focuses on:

1. Structural reform of the utility by Corporatization model
2. Competitive neutrality through monitoring of licenses.
3. Pricing oversight by the regulatory authority
4. Enabling third party access

The act identifies governance framework for the water sector and seeks to separate operational functions from policy making and regulation. It defines governing bodies responsible for policy formulation, regulation, asset ownership and dispute resolution.

The structure envisaged above complements the institutional design being debated by the politicians, water planners and administrators in the region. This is however inconsistent with the 74th amendment act but is supported by the evolving consensus among policy planners and the emerging policy framework defining public service obligation for all consumers, including low income and vulnerable consumers.

## **8.0 Design of Legal Framework for Reforms**

The above framework of legal reforms and the laws that have been recently adopted or that are being considering by some states like Gujarat and Andhra Pradesh to facilitate partnership with private investment through ‘build-operate-transfer’ laws, are typically project specific. These do not address comprehensive sector reforms nor do they facilitate the range of partnerships or PSP options. The legal framework needs to establish mechanisms for implementing the state’s water supply sector policy vision and in consonance with the 74<sup>th</sup> Amendment act. This framework would regulate the relationships between the various state bodies responsible for the sector, economic entities within the sector, and consumers. Ideally, there would be a single UWSS law covering at least all economic aspects of the sector, supported by a suitable Municipal Act. Every municipality should become legally responsible for the overall development of water services in its jurisdictional area. Provisions of Part IX-A of the constitution have to be supplemented by appropriate state law to provide for a suitable sector structure. This has to define the institutional framework for Water supply; the consequent governance structures so as to avoid duplication of jurisdictions and authorities and should be in tune with municipal function.

The key elements of design of such reforms need to provide a framework for rights and responsibilities by defining:

- Legal treatment of water sources e.g. surface, and sub-surface
- Format of surface water rights
- Effectiveness of conflict-resolution mechanisms

- Effectiveness of accountability provisions
- Extent of a centralization/decentralisation tendency within water law
- Legal scope for community and private sector participation in the water sector

All these parameters are critical for the ability of water law to provide a legal framework for an integrated treatment of water from various sources and distribution of water among competing uses. The conflict-resolution mechanisms shall include bureaucratic systems, national water councils, tribunals, water court systems, judicial-legislative mechanisms, river boards, basin-level organizations, water user associations, and multiple arrangements. The accountability provisions shall include those related to officials (e.g., indemnity clause, penalty provisions, and administrative actions) and those related to users (e.g., injunctions, sanctions, and tortious liabilities). The key issues to be considered of the effectiveness of water law shall include its current and future relevance, synergy with other laws, capacity for conflict resolution and accountability and ability to adjust with environmental issues. There is also an emergent need to define water abstraction rights in the area in view of the scarcity dimension among competing users more explicitly and to regulate abstraction better (to avoid over-abstraction) whilst granting some abstraction rights. It is also essential for a sequential strategy for institutional reforms in water to evolve a policy framework for regulation in urban water delivery systems. The sequencing of these options can provide a valuable basis for institutional design and its sequential implementation of alternative policy instruments through legislative and legal reforms

The Maharashtra Water Resources Regulatory Authority Act, 2005 tries to define the above and is a right step in this direction trying to systematize competing uses between surface and ground water and apportion entitlements through development of usage criteria. It also has a legal mandate for setting of criteria for water trading of the entitlements. Better-defined water rights and a pragmatic approach to allocating them could be of help in ensuring that water is used more efficiently and that access is increased. A further improvement is to allow trading of abstraction rights, so as to allow maximum competition. Explicitly defined abstraction rights and improved controls will protect resources and ensure efficient use of resources.

## **9.0 Synthesis**

The research has reviewed some of the emerging legal issues and challenges in the context of the management of urban water delivery in India. Reforms with particular emphasis on institutions and legal framework encompassing the overall gaps in the legislative, institutional and policy reforms are needed for basin water management. The review above point that reforms in water sector need to be actualized by riparian states in a basin and municipal level in an integrated manner. Appropriate and enabling legislation will have to be enacted by states so as to create an efficient, ownership neutral regime. Differences in implementation approaches will be implicit to the initial conditions of the jurisdiction. The deepening of decentralization and private sector participation with the broadening of reforms will be a natural corollary operating in the overall politico economic milieu.

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