

Delhi's Groundwater: Rights and Policy'

*Bharath Jairaj*²

INTRODUCTION

Demands on water resources in India, and particularly in Delhi, are increasing and the distribution of available supplies has long stopped satisfying the demand. These demands have had substantial costs. Groundwater resources have been exhibiting definite signs of overutilisation. The existing legal framework is inadequate to solve this. In fact, it often encourages the indiscriminate use and exploitation of groundwater.

Attempts have been made, both at the Centre and at the State levels, at resolving this problem. However, they have not met with the expected or desired success.

This paper seeks to describe the water situation existing in Delhi and it highlights the inequities of the system. It also seeks to lay out the legal scenario in terms of rights and policies, and briefly elucidate the various legislative attempts made.

THE WATER SITUATION IN DELHI

The natural resources in Delhi, especially water, have been vulnerable to exploitation because it has remained a capital through centuries. Modern developing trends have attracted people to settle here: for jobs, opportunities, and urban life. The increase in population, "development" and industrialisation has had a consequent effect on water resources. The old wells have coughed *dry*, and the river Yamuna forcibly diverted from its original course. After Independence the focus has remained on surface water. From 1941 to 1991, Delhi's population has increased by over 3.8% per year causing a drain on all natural resources, especially the water resources.

In the existing situation, the scenario is one of acute crisis. Water resources are being depleted and what is available is most often contaminated with pollutants. In such a situation, we have a

responsibility to protect the quality of water and question the existing legal and administrative regimes; and to evolve a system wherein water is used and conserved sustainably.

Supply and Demand of Water

The Delhi Water Supply and Sewerage Disposal Undertaking (DWSSDU) estimates that of the 575 MGD supply in Delhi today, 210 MGD is from the river Yamuna, 200 MGD is from the river Beas, 100 MGD is from the river Ganga and the remaining 65 MGD is from government tubewells and the Ranney wells. They concede that to meet the drinking as well as other requirements it is necessary to produce about 700 MGD of potable water.

The consumption profile of water in Delhi, as illustrated by Tables I and II, shows that absolute reliance on surface water supplies alone has never been adequate. The growth process and expansion of economic activities made it imperative to find and make use of a supplement source of water supply. The obvious choice was and is groundwater.

Table I: Demand and Supply of Water in Delhi (MLD)

Demand	22131	2840	5121
Supply	1150	2347	4189*
		493	932

Table II: Total and Per Capacity Water Supply

Year	Population (Million)	Average Supply (MLD)	Per Capital availability (Litres/Day)
1971	4.1	785	190
1981	6.2	1150	185
1990	8.8	2160	245
1991	9.04	2143	231
1993	10.00	2347	235
1995'	10.5	2860	272
2001'	12.8	3520	215

Source: DWSSDU, 1994

* Projected Values

The Significance of Groundwater

Groundwater has always been in use. In fact, it accounts for about **50%** of the total irrigated area and **80%** of drinking and domestic requirements in India³. Groundwater is easily accessible. It is “attached” to the land in many respects and its supply is normally controlled⁴ by the private individual herself. All that it requires is a Water Extraction Mechanism (WEM)⁴, for example, a dugwell or more likely a motor-operated tubewell, and a minimum maintenance cost.

Legally, there is an inherent “right” one has over the groundwater as it lies directly below one’s land. While the general law seems to state that all water and rights therein vest with the State (Entry 17, List II, Seventh Schedule, Constitution of India), groundwater is one area that has always remained in the “private domain”. Groundwater rights belong to the land owner since it forms part of the dominant heritage, and land ownership is governed by the tenancy laws of the State. A person with a dominant heritage who transfers her land also transfers the water under it. The relevant provisions of the law on this point are reproduced in **Annexure I**.

The Problems with Groundwater

The **1989** Report of the Central **Groundwater Board (CGWB)**⁵ reveals that since their **1984** study, the water table in all parts of Delhi has gone down substantially, indicating thereby that groundwater recharge is much less than its withdrawal from the aquifers. The nationwide drought of **1987** is a clear indication that the sustainable limit of groundwater exploitation is very low. The groundwater situation has turned acute since the percentage of rainwater falling directly (vertically) is minimal and most of it is lost through run-off and evaporation and does not go down to the recharge zone depth. It was suggested that private individuals should stop willful exploitation of groundwater and regulate or **at least** register private tube wells⁶.

In a more recent state of the environment report of Delhi, it is stated that “the water table of Delhi, in general, is low. Though much of the water is brackish, about **237** million cubic metres is withdrawn annually... (as reported by the Central Ground Water Board)”⁷. In addition, **Mr. V.M. Sikka**, scientist, CGWB, notes “rapid urbanisation of Delhi has (had an) adverse impact on the groundwater resources of the State where (the) water table has declined in most parts by **2** metres to **8** metres during the last decade”⁸.

The management of Delhi’s water is rather unique. The Municipal Corporation of Delhi (MCD), the New Delhi Municipal Corporation (NDMC) and the Delhi Cantonment Board (DCB) all have their respective areas of water supply. Of the total of **1484.46 sq.km** that make up Delhi, **1399.26 sq.km** is under the MCD, **42.40 sq.km** under the NDMC and **42.80 sq.km** under the DCB. Apart from the overlap of jurisdictions, the price for water supplied by these agencies Delhi is particularly low. The level of subsidy is extremely high. The cost of production of 1 kilolitre of potable water is **Rs.2.13** and the domestic tariff is **Rs.0.35** till **20** kilolitres and **Rs.0.7** above **20** kilolitres (plus a surcharge of **30%**). In other words, the level of subsidy is as high as **79%** for the lower slab⁹.

Almost half of the consumption is not metered. Charges for unmetered consumption are either calculated on an underestimated flat rate or on an underestimated average¹⁰. And there remains

the question of equity: because only landowners can 'own' groundwater, landless individuals and slum-dwellers are left out.

Had there been an equitable and sustainable use of groundwater, perhaps there would have been no problem. Now, to resolve the water scarcity problem, the Delhi State Government seeks to depend on water from mega-hydroelectric dams to be constructed in the Himalayas. This is both ecologically and seismologically undesirable.

CEL, WWF-India's Research on the Problems of Delhi's Groundwater

The special status of groundwater has always ensured that it is kept away from the regulatory clutches of the State. In fact, there has hardly been any research on groundwater. This, *inter alia*, prompted CEL, WWF-India to collect information pertaining to Delhi's water, and in specific the groundwater. The methodology used in obtaining the information was essentially through a questionnaire.

For the purpose of data collection, Delhi was divided into five sections: north, south, east, west and central. A cross section of the residents were interviewed based on their socio-economic status. While the final analysis of the information is yet to be done, the data collected suggests that gross inequities in the distribution of water exists. In order to highlight the inequity, the residents have been classified on the basis of their socio-economic status as: (a) lower class; (b) middle class; (c) elite; (d) VIP areas; and (e) hotels.

The NDMC has adopted the figure of 225 litres per capita per day as the city's water load¹¹. While most residents of the lower socio-economic groups face water crises throughout the year, they turn acute in the summer months (April, May, June and July). On an average they get as low as 15 litres per capita per day and very often have no dependable water supply. Many have resorted to groundwater extraction, but usually do not use it for cooking, drinking or bathing purposes, as they find its quality very poor. However, very often, they do not have a choice.

The 50-odd embassies and other VIP areas require about 45 kilo litres per day¹² and in the event of a water shortage, private and government agencies rush in tankers with capacities between 450 litres and 15,000 litres for price ranges between Rs. 400 and Rs. 2000 respectively.

Over and above the water supplied to them by the agencies, the five-star luxury hotels in Delhi used to rely on groundwater. They have since stopped making use of this source as it was found to be of sub-standard quality. They now largely resort to buying water from private tanker agencies. Even this water is treated, in order to conform to international standards, before the foreign clientele uses it. On an average they require 20 tankers of 12 kilolitre capacity per month in the non-summer months and at least 10 more during the summer months.

Gross inequities are the rule, which is rather shameful for the capital of the world's largest democracy.

The problems therefore are:

- (i) There is an inadequacy in the supply of water in Delhi. In order to satisfy their wants and needs, private individuals and agencies **are** resorting to extraction of groundwater.
- (ii) There is no legal regime within which this extraction takes place. As a result, there are no limits or safeguards to the groundwater extraction. Since this right is available only to the landed, there are serious equity and equality questions that arise. The additional costs of the WEM and maintenance contribute to this inequality.
- (iii) The administrative practices of the various Government agencies in the supply of water, in terms of their respective scopes and jurisdictions, have added to the confusion.

Confronted with similar situations, the Central Government and the various State Governments responded with Bills and Acts hoping that these would solve the problems.

EXISTING LEGAL FRAMEWORK

Entry 17, List II of the Seventh Schedule to the Constitution of India, 1950 makes it clear that the state governments have the legislative competence to legislate on “water, that is to say, water supplies, irrigation and canals, drainage and embankment, water storage and water power subject to the provisions of Entry **56** of List I”. Entry 56 of List I deals with inter-state rivers and river valleys.

Groundwater is not mentioned in this Schedule. Nevertheless, the major initiatives have been at the national level. The National Water Policy of 1987 was formulated which recognises the importance of prudent groundwater resource management and conservation as well **as** equitable distribution on the basis of common policies and strategies. Another initiative was the setting up of the national level Central Ground Water Board (CGWB) to conduct necessary surveys and investigations.

The Groundwater (Control and Regulation) Act, 1970

This Model Bill was prepared by the Central Government to be adopted by any State Government to regulate and control the development of groundwater and the matters connected therewith, as the title suggests.

The Bill comprises a total of 23 sections. The salient features of this Bill are as follows:

- (i) Section 3 prescribes the format for the formation of a State Groundwater Authority which is **to** be established by the State Government. This Groundwater Authority is to consist of a Chairman and several other representatives concerned with the development of groundwater to be appointed by the State Government, as specified in the Section.

- (ii) The State Government is empowered to regulate the extraction or use or both of groundwater in any area if it is in the interest of the public.
- (iii) It is mandatory for any person to apply for a permit or licence to sink a well in the notified area for any other purpose other than domestic use.
- (iv) This Bill has granted/sanctioned the State Groundwater Authority with certain powers:
 - a. The power to grant or cancel the permit/licence.
 - b. The power to grant the certificate of Registration to existing users of groundwater in the notified areas and the power to alter, amend or vary the terms of the permit.
 - c. The power to enter any property with a right to search, inspect, investigate or seize any mechanical equipment utilized for illegal sinking, if it has reason to believe that an offence under this Act has been or is being committed.
 - d. The prosecution of an offence under this Act can only be instituted with the written consent of the Groundwater Authority.
- (v) The offences under this Bill are to be tried as under the Criminal Procedure Code, 1898.
- (vi) Section 19 specifies the penalties for the commission of an offence under this Bill:
 - a. For the first offence: fine which may extend to five hundred rupees.
 - b. For second and subsequent offences: imprisonment for a term extending to six months and/or with a fine upto one thousand rupees.
- (vii) This Bill imposes a bar on the civil courts to try any matter on which the State Government or the Groundwater Authority has been empowered to act.

The Bombay Irrigation (Gujrat Amendment) Act, 1976

The Amendment made to the Bombay Irrigation Act, 1879 as applicable to the State of Gujarat came into force only in 1988. It sought to regulate the construction of any tubewell, artesian well or borewell, exceeding forty five metres in depth. The land owner was required to apply for a licence in order to extract groundwater from lower depths.

The authority under this statute was the Regional Canal Officer. to whom the application for license was to be submitted. The RCO was vested with the sole power of granting or denying a license.

The penal consequences for violations of the Act included the closing/sealing of the well, and/or imprisonment which may extend to six months and/or fine which may extend to five hundred rupees.

The Karnataka Groundwater (Regulation and Control) Bill, 1985

This Bill draws both letter and spirit from the 1970 Model Bill. However, it departs from the Model Bill in that Section 2(1) of the Karnataka Bill defines “domestic use” of groundwater as follows: “use of groundwater in reasonable quantity for drinking, cooking, washing, livestock preservation and contrary requirements by an individual or a group of individuals depending on one or more sources for abstraction of groundwater but shall exclude all wells which are used primarily for irrigation”. In addition, it categorically states “all the groundwater that exists below the surface of the ground at any one location or center inous locations shall be the property of the State and belong to the State” [S. 3(1)].

Violations by individuals will result in a fine of a maximum of one thousand rupees for first offenders and upto two thousand rupees and/or imprisonment for one year for second and subsequent offenders. Violations by companies will result in the prosecution of the person in charge of, and responsible for, the affairs of the company.

The Maharashtra Groundwater (Regulation for Drinking Water Purposes) Act, 1993

This Act was enacted to regulate the exploitation of groundwater for the protection of public drinking water sources, thereby reiterating the fundamental premise of the 1987 National Water Policy. It prohibits the sinking of any well within five hundred metres of a public drinking water source. In addition, it prohibits the sinking of a well within the area of “an over-exploited watershed” [S.7(1)]. The appropriate Authority is the body vested with the powers in this regard.

The Act also provides for the Authority to prohibit extraction of water from an existing well for certain periods in a year based on the quantum and pattern of rainfall.

The penal provisions for violation of the Act include the closing/sealing of the well and disconnecting power supply.

Control and Regulation of Groundwater Exploitation in Pondicherry and Karaikal, 1988

This notification was issued by the Lt. Governor, Pondicherry, in order to protect the rapidly declining water tables in the Union Territory. It prohibits the construction of a tubewell, the grant of new power connections for energising any tubewell, and the setting up of industries requiring more than 10,000 litres of potable water, within six kilometres of the coastline.

Tubewells outside the six kilometres limit can be constructed only with the clearance of the State Groundwater Unit and even then at a minimum of 150 to 200 metres apart from each other.

The Madhya Pradesh Peya Jal Parirakshan Adhiniyam, 1986

This legislation came into force on 9th January, 1987. The salient features of the Act are:

- (i) This Act is to provide for the preservation of water and for the regulation of digging of tubewells in order to maintain the water supply to the public for domestic purposes.
- (ii) As in the Karnataka Groundwater Bill, this Act also defines “domestic purposes”.
- (iii) The Collector has the power and authority under this Act to grant or refuse permission for the digging of a tubewell.
- (iv) The punitive measures provided under this Act are imprisonment extendible to two years and/or a fine upto two thousand rupees.

The Tamil Nadu Groundwater (Control and Regulation) Bill, 1977

This Bill regulates and controls the development of groundwater in the whole of the State of Tamil Nadu. It is a verbatim replication of the Groundwater Model Bill of 1970 with certain specific differences:

- (i) Before making any alteration, amendment or variation in the terms of the permit and the Certificate of Registration, the Groundwater Authority has to ensure that:
 - a. The standing crops in the area are not damaged; and
 - b. The existing interests of the industries using the groundwater also are not affected.
- (ii) This Bill has an overriding effect over all the other existing Acts in case of inconsistency.

Model Bill to Regulate and Control the Development of Groundwater, 1992

Based on the comments received from different State Governments, the Central Government revised the Groundwater Model Bill of 1970. This Bill is now being re-circulated as the Model Bill of 1992. The salient additions are:

- (i) It exempts “small farmers” and “marginal farmers” from obtaining a permit for extraction of groundwater.
- (ii) A limit of six months has been laid down for obtaining the licence.
- (iii) It allows the Groundwater Authority to cancel a permit or licence if it feels that a situation has arisen warranting such an action.

ANALYSIS OF THE EXISTING LEGAL FRAMEWORK

The Central and State responses to the groundwater problem have created a new situation. The general law seemed to have clearly laid down the absolute right of the private individual over the water beneath her land. Now, the new Bills and legislations are based on the right of the State to regulate the private individual right.

While the Model Bill of 1970 and the revised Model Bill of 1992 remain “models”, almost all the legislations draw inspiration from these Bills in both letter and spirit. The underlying basis of the Bills and Acts is that the State has granted itself the right to regulate and control the development of groundwater. The adoption of criminal procedure and prosecution for violations of the provisions of the Bill/Act only emphasises the seriousness of the intentions of the State.

The Bombay Irrigation Act, 1879 as amended in the State of Gujarat in 1976 came into force only in 1988. It is based purely on the depth of the digging of the WEM. The drawbacks with this Act is that it is restricted in its application to a few districts in Gujarat. In addition, all supervision was to be done by the Regional Canal Officer (RCO). This was found to be highly impracticable as the RCO could not monitor the WEM's and their depths in all the districts mentioned. Further, it was felt that the punishments did not deter the commission of the offences under the Act¹³.

The Karnataka and the Tamil Nadu Bills are almost replicas of the Model bill of 1970. The Karnataka Bill defines “domestic use” and excludes it from the license requirement. The Tamil Nadu Bill departs from the Model Bill in allowing for industrial interests to be protected during the determination of altering or amending the terms of the license or permit.

The Madhya Pradesh Act grants the power to grant permits and licenses to the Collector. As in the Karnataka Bill, this Act also defines and excludes “domestic purpose” from the license requirement. The notification issued by the Lt. Governor of Pondicherry is based on the need to protect fresh water supplies from contamination by the sea water. The notification was an immediate reaction to the depleting water tables in the Union territory and preceded legislative discussions on this topic.

The Maharashtra Act of 1993 is probably the most comprehensive of the legislative attempts made. While it concentrates on drinking water - the focus of the National Water Policy of 1987, it bases its approach on the distance and spacing between the new well and another public water supply. In addition, it allows the Appropriate Authority to prohibit (a) the sinking of a well within an area of “over-exploited watershed” as determined by the Appropriate Authority and; (b) extraction of water from an existing well for certain water-shortage periods (summer months). Further, it allows the Appropriate Authority to shut off electricity supply to contravenors of the Act.

On the whole, the legislative attempts have been unsatisfactory. They have merely tried to regulate the extraction of groundwater. The Bills and Acts have not taken into account the variances in socio-economic status and remain ambiguous on the extent of the water rights, if any. Even the implementation of these laws leave much to be desired and so they have not achieved even the meagre objectives they were set out to achieve. Given this fact and the uniqueness of Delhi's water situation, attempting to apply any of these laws to Delhi will prove infructuous.

CONCLUSION

Groundwater was not specifically mentioned in any of the Lists in the Seventh Schedule of the Constitution of India. This could be because the framers, in their infinite wisdom, did not envisage a water crisis as we are faced with today. On the other hand, it could be because they felt that groundwater was too “private” to be given to the regulatory State.

The fact remains that we are faced with a water crisis. And the attempts made by the Union and the State agencies have only tried to regulate extraction. The direction of all government action has been at augmenting supply, never at demand management. None of the Bills or Acts have sought to deal with the inequity and inequality inherent in the very conceptualisation of groundwater - it being only available to the landed. Can a legislation that fails to take into account social and economic realities ever achieve its objectives ?

The enormous subsidy afforded to Delhi, by virtue of it being the capital, is really not required. Even the preliminary data collected by CEL. WWF-India suggests that the residents of Delhi are ready to pay more for their water *provided there is an improvement* in water quality and quantity. The leakages, even those admitted by the NDMC amount to a phenomenal 25-30% of the water supplied¹⁴. The agencies blame this on the inadequacy of revenue from faulty water meters and the low rates for water. Can not the money spent on providing the subsidy be spent on reducing leakages, improving the water pipe connections, installing efficient water meters and other infrastructural arrangements?

The gross inequities can not be emphasized enough. The MCD, NDMC and DCB send kilolitres of treated water to industries for their use. What equitable use can this treated potable drinking water be put to in a complex industrial process, when millions of poverty stricken families have no access to any kind of water?

For an efficient regulatory regime, perhaps we require ecological and more specifically aquifer-based divisions of the State. The question of rights - those of the landed and those of the landless needs to be addressed within this framework. All attempts that ignore this reality remain inadequate. And perhaps, we need to look at water and water management more holistically: understanding surface water, groundwater and rain water as a common pool of resource, giving equal importance to augmenting supply and managing demand.

NOTES

- 1 This is a revised version of the paper presented at the Workshop on “Water Rights, Conflict and Policy”, Kathmandu, January 22-24. 1996.
- 2 The author is attached to the Center for Environmental Law, World Wild Life Fund-India.
- 3 Sharma 1995
- 4 Shah 1993

- 5 Central Ground Water Board, 1989
- 6 Mookherjee, 1994
- 7 WWF-India. 1995: 8
- 8 Sikka 1995:31
- 9 Zerah 1996
- 10 Ibid.
- 11 WWF-India 1995:140
- 12 Ibid.:139
- 13 Devi 1991:614
- 14 WWF-India 1995:135

REFERENCES

Central Ground Water Board. 1989. Report of the Central Ground Water Board. New Delhi: Central Ground Water Board.

Devi, Rema. 1991. "Groundwater Development and Legal Regulation". In, *Journal of the Indian Law Institute*. Vol.33, (4).

Mookherjee, P. 1994. Times of India. March 16, New Delhi

Sharma, S. C. 1995. "Regulation of Groundwater Development in India: Existing Provisions and Future Options". In, M. Moench (ed.), *Groundwater Law: The Growing Debate*. Gujrat: VIKSAT.

Sikka, V.M. 1995 "Ground Water Resources of Delhi State: An Overview". In, Spatio-economic Development Record, Vol.2 (6).

Tushaar Shah. 1993. Groundwater Markets and Irrigation Development. Bombay:, Oxford University Press.

World Wild Life Fund- India. 1995. Can The *Clock Be Turned Back?* Environmental Status Report. Delhi: WWF-India, New

Zerah, Marie-Helene Zerah. 1996. "Towards a more efficient management of water supply in Delhi: Issues of water pricing and cost benefit analysis", paper presented at seminar organised by INTACH, "Delhi's Water: Problems and Alternatives", July 8, 1996, New Delhi

ANNEXURE-I

LAW RELATING TO GROUNDWATER

1. Section 3(a) of the Land Acquisition Act, 1894
 - (a) [T]he expression “land” includes benefits to arise out of the land and things attached to the earth or permanently fastened to anything attached to the earth; ..

2. Section 3 of the Transfer of Property Act, 1882:

[A]ttached to the earth” means-

 - (a) x x x;
 - (b) x x x;
 - (c) attached to what is so imbedded for the permanent beneficial enjoyment of that to which it is so attached;

3. Section 17 of the Indian Easements Act, 1882: Easements acquired under section 15 are said to be acquired by prescription, and are called prescriptive rights. None of the following rights can be *so* acquired:—
 - (a) x x x;
 - (b) x x x;
 - (c) x x x;
 - (d) a right to underground water not passing in a defined channel.

(Thereby clarifying that groundwater is linked to the dominant heritage)