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Legal Framework for Groundwater Regulation

Rema Devi.P.\*

1. Introduction

In India , groundwater is a potential resource for human and livestock consumption, industrial requirements and mainly for irrigation. In spite of the abundance of this resource, it has not been possible to ensure its sustainable development and equitable distribution. One of the major factors responsible for this state of affairs has been the physical distribution of the resource itself. Due to uneven distribution of the resource, in certain areas of the country excessive withdrawal is causing depletion of the water table whereas in others there is difficulty in drainage and fear of saline intrusion.

Given the gravity of the situation, efforts have been made to formulate a legal framework to arrest further deterioration of the resource and ensure its sustainable, equitable and efficient development, but with little success. This has been because certain relevant parameters have been ignored in the making of the law itself. For instance, the appropriate institutional arrangement, the existing nature of rights on the resource, various strategy options available for regulation, complexity of energy requirements and so on. This paper makes an effort to

\* Consultant, Indian Law Institute, New Delhi, India

broadly formulate what factors an appropriate legal framework should take into consideration before making a region-specific law to regulate groundwater use.

Various initiatives have been taken at the national level to promote the development of the resource. The National Water Policy of 1987, recognizes the fact that questions of prudent groundwater resource management and conservation as well as equitable distribution have to be tackled on the basis of common policies and strategies. The beginning of the planning era witnessed an over emphasis on surface irrigation works. This was due to several reasons, such as long Indian experience in canal irrigation, uncertain assessment of groundwater potential, lack of availability of pumping equipment and constraints on energy requirement. It is from the third plan onwards that we see a shift in favour of groundwater development mainly due to the severe drought experienced in eastern India during 1966-67 and the realization that prudent management of the resource is imminent. In spite of this, only thirty per cent of the groundwater potential in terms of safe yield of the groundwater basins, is being utilised.<sup>1</sup> This clearly shows that much more attention needs to be given to this sector.

The setting up of the Central Ground Water Board (CGWB), a body at the national level to conduct necessary surveys and investigations to be carried out by its regional offices and field offices located in various parts of the country, has again been a step forward to the development of the resource.<sup>2</sup> In addition to CGWB, each state has its own ground water survey organisation (SGWO) which carries out similar work but at a minor level. These bodies have played a significant role because scientific assessment of the quantity and quality of ground water is difficult and also preconditional to its development.

Before exploring the appropriate legal framework a general discussion on the physical characteristics of the resource has been done here.

## II. Physical Characteristics

There are two sources of irrigation, surface water and groundwater. The surface water refers to that part of precipitation or melting snow which runs off the surface of the earth and flows into rivers or is stored into dams, ponds or tanks. Groundwater, on the other hand, is that part of precipitation or melting snow which infiltrates in the soils and takes the shape of underground storages when it meets some impermeable layer on the way<sup>3</sup>.

At current levels of development, roughly 35 million hectares (Mha) of crop area can be irrigated from ground water. This exceeds the 33 Mha irrigation potential created through all major and medium irrigation works.<sup>4</sup> Groundwater availability in any area is largely governed by the state of cementation and compaction of the formation. The geographical formations may be broadly divided into the unconsolidated, which comprise the alluvial plains in Central India, some parts of Gujarat and Western Rajasthan, the semi-consolidated in some parts of east coast, west coast, Andhra Pradesh, Bihar and Orissa, and the consolidated formations which are hard rock areas and comprise of almost the entire south India.<sup>5</sup> The consolidated areas have the biggest groundwater potential followed by other areas. Even within the unconsolidated region, the level of utilisation is not uniform. In the North-Western region (western Uttar Pradesh, Haryana and Punjab) the withdrawal of groundwater has exceeded 80 percent of the known potential. In contrast, in the eastern Gangetic region, where groundwater potential is greater, the utilisation is poor<sup>6</sup>. In areas, where both surface and groundwater resources are plentiful, like in the Indogangetic plain, there has been traditionally more stress on surface water irrigation. Scientists of various

disciplines have confirmed that surface systems could accentuate the already serious problem of water logging, deterioration of soil quality and as a result land productivity and problems of drainage whereas groundwater use or conjunctive use of ground and surface water can not only arrest these problems but can also help in mitigating the ill effects of floods.<sup>7</sup> In the hardwork areas there is over-exploitation of the resource caused by inadequate recharge to the aquifer and the consequent falling of the water table and the spread of intensive water using crops such as sugarcane and turmeric.<sup>8</sup> Here strategies will have to be evolved to check overextraction of water and regulate the types of crops to be grown.

The type of groundwater structure in any area depends upon the type of hydrogeological setting and also the size of farm holding. The private groundwater structures in India may be divided into three categories, wells, dug-cum-bore wells and tube wells. There are community owned tubewells as well as public tubewells. There are less than 70,000 public tubewells in India today and perhaps much less than 5000 community wells sponsored by NGOs<sup>9</sup> against this there are over 11 million private water extraction machines<sup>9</sup>. Therefore, extraction of water in the private sector is much higher than in the public or community sector.

### III. The Existing Legal Framework

#### 3.1 The Constitutional Mandate

The Constitution clearly mandates that the resource is to be used in an equitable and just manner with minimum harm to the environment. Various provisions have to be read together to arrive at this conclusion. Under the directive principles of state policy, the state is under a duty to secure a social order for the promotion of ~~the~~ welfare of the people in which justice, social, economic and political shall inform of the institutions of national life.<sup>10</sup> Further the state has to, in particular, direct its policy towards securing that the ownership and control of the material resources of the community are so distributed as best to subserve the common good and that the operation of the economic system does not result in the concentration of wealth and means of production to the common detriment. <sup>11</sup> The state as well as the citizens are under a fundamental duty to protect and improve the environment <sup>12</sup>.

Coming to specific provisions relating to the development of the resource, in the Constitution of India, water, that is to say water supplies, irrigation and canals, drainage and embankments, water storage and water power are items of list II of the seventh schedule of the

Constitution i.e. the state list <sup>13</sup>. Accordingly, if in any one of these matters there is need for a legislation, the states in India will be empowered to legislate and not the Centre. However, under Article 252 of the Constitution, Parliament is given the power to legislate for two or more states on matters falling even in the state list, if the states so desire and resolutions are passed by all the houses of the legislatures of those states. In the groundwater regime, if there are problems which concern more than one state, which is probable as groundwater aquifers do not conform to geographical divisions, then the Centre can be asked to make the appropriate law.

### 3.2 Specific Legislation

The Act which directly deals with the groundwater issue is the Bombay Irrigation (Gujarat Amendment) Act of 1976 which came into force in 1988 March. At present only the State of Gujarat has a groundwater law and its operation is restricted to only two districts here i.e. Mehsana and Banaskantha. The State of Tamil Nadu and Karnataka are proposing to make such a legislation very soon. The Acts seeks to regulate the construction of tubewells, artesian wells and borewells exceeding forty five meters in depth in any land assessed or held for the purpose of agriculture and

provide for matters incidental thereto. The Act is administered by the Irrigation Department officials mainly the Regional Canal Officer.

The Act <sup>14</sup> also contains penalising provisions. Under section 100 if any person contravenes the provisions of section 94 or 96 or any rules made under section 101 of the Act, in respect of the construction or maintenance of tubewells or any of the terms or conditions specified in a licence granted under section 95, he shall, on conviction be punishable with imprisonment for a term which may extend to six months, or with fine which may extend to five hundred rupees, or with both.

In a gist, the Act regulates the extraction of groundwater for agricultural purposes through licensing methods. Penal sanctions are used for contravention of rules laid down under the Act. In the Karnataka Act there is two years imprisonment for contravention of any provision except well registration. In the proposed Tamil Nadu Act a provision for electricity cut also exists.

An effective legislation is possible only if the institutional arrangement for management of the resource to be regulated, the existing rights over the resources and the



various regulatory strategies that are available are looked into carefully. A brief account of these determining issues is being explored to assess the suitability of the newly formulated legislation.

### 3.2.1 Institutional Arrangements

At present there are three types of institutional arrangements prevailing in India. Groundwater structures owned privately, by the state and the community.

Studies have proved the fact that the spread of private tubewells in the country have led to inequitable distribution of the benefits because of the inability of small and weak sections of farmers to invest the requisite amount for extraction, difficulties in getting credit facilities, high transaction costs and so on. <sup>15</sup> With enhanced technology conditions, rich private owners are at an advantage to bore deeper and pump more water. Excessive pumping leads to disturbances of the ground water table especially in hardrock areas where water scarcity is prevalent. This leads to ecological injury and inequitable distribution.

In India, the experience with public tubewells has also not been very encouraging. The costs for operations

have been relatively much more than the private tubewells, the maintenance has been poor, and the access of small and marginal farmers to the resource has been disappointingly low <sup>16</sup>.

Another institutional option is the community wells mostly owned by small farmer groups. If community institutions are given the responsibility of managing the resource, then a lot of spade work needs to be done to facilitate this process. The land holdings need to be reorganized, proper unbuilt accountability mechanisms inducted into their functioning through an external agency, scientific help given and so on. Even then, even though India has been known to have managed resources better in a community, the feasibility of entrusting the resources to the community as it exists today may be problematic. This is so because well defined communities and homogenous groups may be difficult to identify and these may also be influenced by external forces. If accountable management is possible by minimal state intervention, it may be a better option keeping in mind the nature and availability of the resources. If the states can strengthen the already existing grassroot democratic structures like the Panchayats and Zila Parishads and formulate proper accountability

mechanisms, involve the community in chalking out policies and programmes and implementing them, then community management within the umbrella of state management would be possible. In this type of arrangement peoples participation can be ensured and management by panchayats can by extention mean management by local groups. The once proposed <sup>a</sup> amendment to the Constitution ~~and~~ sought to rejuvenate the Panchayati Raj institution in a big way. <sup>17</sup> Renewed efforts need to be made in this direction.

### 3.2.2 The nature of rights

Status of any right on a resource can be natural or granted by law, customary, positive a negative, individual or that of a group. It can be total ownership of the resource, it can be held as a trust or can be restricted to only an enjoyment of its benefits i.e. a usufructory right  
18

At present, the status of rights over groundwater is not specific and clear. The conflicting issues complicating assessment of the quality of rights are brought forth in the ensuing discussion.

At present a land owner has the right to sink a well on his land and extract any amount of water. According to the Easements Act of 1882, the owner of the land also owns

the groundwater beneath it. This implies that the right to use groundwater is basically an individual negative right which cannot be infringed or interfered by any external agency. However, this arrangement has another dimension too. India being a welfare state undertakes or can undertake developmental works relating to ground water extraction of which the benefits go to the users. If groundwater is harnessed and augmented by construction of percolation tanks, check dams and so on, it cannot be said that the users enjoy a negative individualistic right over it. Similarly, if we see the English Common Law, it recognises the doctrine of riparian rights to regulate proprietary rights in water. Each co-riparian has the right to have the water flow pass his lands in the same quantity and quality. There is a duty cast upon the upper riparian to see to it that the lower riparian is not denied this right. There is also a difference between an underground stream where riparian right is applicable and groundwater wherein private right is recognized. It is according to this tradition that Indian statutes like the Easement Act were designed.

However, though the statutory law reveals that the rights over the resource is of a private nature, case law,

although scanty, gives contradictory implications. In a recent case in the Kerala High Court, Attakaya Thangal v. Union of India,<sup>19</sup> it was held that excessive pumping of water and disturbance of the quality was violative of Article 21 of the Constitution. In this case the Administration of Lakshdweep Islands had evolved a scheme to augment water supply by digging wells for meeting increasing demands of potable water. The implementation of the scheme was challenged by the petitioner on the ground that it was violative of Article 21 of the Constitution. This plea was due to the limited availability of groundwater in the islands and the fear that excessive pumping would disturb the fresh water equilibrium by the intrusion of saline water from the surrounding Arabian sea. The court laid down that the right to potable water forms an attribute to the right of life.

This case reveals that no person can enjoy a private right to groundwater to the detriment of the community who are dependant on the resource for drinking purposes. This exposition creates a dichotomous situation in the legal framework as a result of conflict between case law and statutory law.

What the court might have implied may have been that the private right to own and use water is not an unrestricted one; it is subject to reasonable restrictions for the welfare of the community.

When we examine the nature of customary usage of groundwater resources in India, we come across various types of property relations. We find community wells, user group being the villagers but owned by private landlords or by trusts like ~~be~~ temples etc. Here a private property is being used as a common pool resource and a usufructory right is given to a whole group. Incidence of groundwater structures owned by local government units are also many. However, this arrangement does not make groundwater into a common property resource for which the property relations of ownership has to be reorganized. Should then groundwater rights be private or group and if so to what extent? As the review of institutional arrangements reveal, privatisation without efficient extraneous control is inequitable. Total state interference has been unsuccessful. If then the option is participatory community control with minimal state interference at the grassroot level, it would be proper to treat groundwater as a ~~united~~ common property resource on which individuals enjoy only a group right. In this

situation the rights of the group are negative but it is limited to some extent by grassroot democratic state structures making it a positive right. However it does not totally become a positive right as the group has enough autonomy.

Entrusting management of the resource on local bodies working in collaboration with the groundwater boards and regional offices would be the most suitable arrangement keeping in mind the diversity in the availability of the resource and the need to design different strategies depending on it, the fragmentary nature of land holdings, the difficulty of regulation if private ownership and permits are encouraged and the problems of forming well adjusted communities working on standards of equity and justice. However in doing so, the accountability of these bodies has to be very foolproof. This can be done through various mechanisms. If the local body is a panchayat or any other institution created by statute relating to groundwater, then peoples participation has to be encouraged at all levels beginning from the policy planning stage to the implementing stage. The participation should be to such an extent that the local needs are taken care of in any project and monopolisation by a few representatives does not take place.

The authorities implementing the project should be made accountable for any act done in excess of their authorised powers, for violating the principles of natural justice, or for inaction.

### 3.2.3 Strategy Options

In law, various strategies like the deterrent strategy, regulatory strategy and management strategy are available for regulation. Deterrent strategy involves criminal liability and depends for its success on effective policing. The regulatory strategy involves delegated powers and depends for its success on the administrative powers to give licences and incentives or deprivation of opportunities. The managerial strategy involves setting up organisational infrastructure that facilitates the achievement of desired ends.

Since private ownership of wells is not going to be the ideal institutional arrangement, the regulatory strategies of licensing and delicensing may not have much relevance. The deterrent policing strategy is inadequate to deal with environmental deviance as the behaviour sought to be regulated does not satisfy the requirements of a traditional crime. In environmentally deviant behaviour the deterrent theory is ineffective also because they fails



to deter and the costs for non compliance is far less than that of compliance. While promoting community institutions, the strategy should be managerial. The organisational infrastructure should be so efficient that problems arising out of groundwater extraction get settled at the local level itself.

After considering the merits and demerits of the institutional options prevailing today, the status of water rights and the various strategies available for regulation, it becomes clear that the Gujarat Amendment Act ignores these crucial issues and also suffers from many intrinsic defects. Firstly, it seeks to control private extraction through the mechanism of external control, that is permits. The feasibility of effective implementation of such a law is questionable. It is as such difficult to monitor the digging of wells and with it even more difficult to check over-extraction from them. The strategy of giving these responsibilities to the Canal Officer does not also promote efficiency. A much more sophisticated, specialised and efficient machinery is required for such purposes. There is not even any provision in the Act wherein it is provided that the authorities implementing the Act have to work in cooperation with the Central Ground Water Board or its

regional offices or sections. The penalising provisions in the law are again defective. Punishment should be of a certain quality that would discourage deviance and not promote it. Six months imprisonment or a fine of five hundred rupees may not be of much consequence to a rich influential farmer. What is necessary is changing the deterrent strategy to a more innovative one and designing appropriate imaginative sanctions.

To promote efficiency by evolving an effective legal framework, certain other relevant issues will also have to be looked into. First and foremost, there is the issue <sup>of</sup> energy requirement. Along with manipulation of water supply, delay in repairs and ~~cumber~~<sup>some procedure</sup> another major complaint against the public tubewell system has been frequent power cuts and irregular electricity supply, whereas in other states over exploitation of groundwater is further increased due to subsidised electricity and horse power linked tariff. Regulation in the peak periods, encouraging prorata metered tariff rather than flat rates and such other options could be thought of. For this, the hard task before formulating a groundwater law would be to rectify the lacunae in the relevant energy statutes like the Electricity Supply Acts and in the administrative set up.

Secondly, if extraction structures have to be put in places recommended by the groundwater boards, it could be possible that private ownership could come in the way of implementing the scheme. Issues of land distribution and ownership and the statutes relevant herein will need thorough examination in the areas where proposed community groundwater structures are going to be set up. Statutes of relevance would be the Land Acquisition Act, 1894 and the State Panchayat and Zila Parishad Acts and those relating to land holdings.

#### IV. Overview

The discussion on groundwater development and legal regulation has revealed the following facts :

- a) It is not possible to articulate a uniform law relating to groundwater whether it is regionwise or sectorwise because of the divergence in geographical distribution and peculiarities in the problems of various sectors like industrial sector, urban water supply sector, agricultural and rural water supply sector.
- b) Therefore, localised management of the resource would be the answer. For this, the appropriate

institutional arrangement as far as water for irrigation and rural domestic use is concerned would be groundwater structures to be managed by local bodies. The empowered local bodies could be the panchayats or institutions specially created by state legislation.

- c) In case panchayats are given the responsibility of management, accountability mechanisms to ensure efficiency and equity, have to be devised. The Panchayat Acts, a neglected area, would have to be revisited and rejuvenated to meet this task.
- d) The local bodies especially the panchayats may not have the scientific enterprise to decide on the location, extraction or dispute settlement issues. Therefore close collaboration with the regional and field offices of CGWB would be necessary. Collaboration with Canal Authorities for promotion of conjunctive use of surface and groundwater especially in the command areas has to be activated.
- e) The related issues that have bearing on groundwater like energy and land distribution would have to be looked into with specific reference to the area where groundwater use is to be regulated.

- f) In this arrangement, the resource is to be considered as a common property resource to be managed by local bodies with the help of local communities.

#### FOOTNOTES

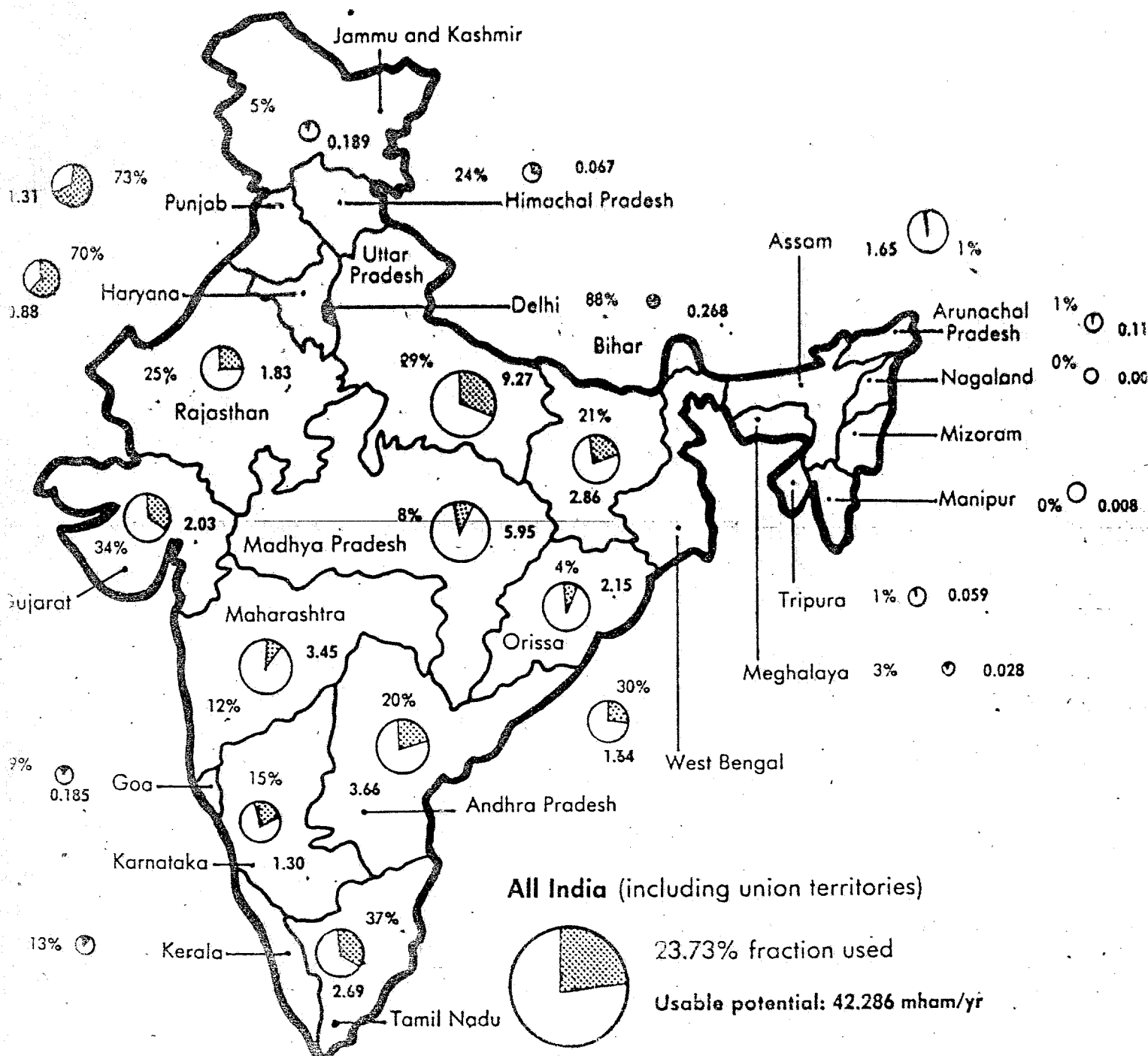
1. Nishi Sharma, "Groundwater Development in Eastern India", Financial Express, p.6, 14 Jan. 1989, New Delhi (also see Annexure 1)
2. In 1989 there were 9 such offices and 10 state level unit offices, one engineering circle and 11 engineering divisions. The board has on its strength about 500 scientists and engineers and 2500 supporting field staff. For more details see, R.S. Saksena, "Present Status of Groundwater Management in India and Perspective for Future" in IRMA (Gujarat), Workshop on Efficiency and Equity in Groundwater Use and Management, 30 Jan. 1 Feb. 1989 (Papers unpublished)
3. V.K. Sharma, "Utilisation Aspect of Groundwater Management" in supra n. 2.
4. Dhawan B.D., Studies in Minor Irrigation, Commonwealth, New Delhi, India.
5. R.K. Saksena in supra n.2.
6. IRMA, Workshop Report on Efficiency and Equity in Groundwater Use and Management, 4 March 1989.
7. Id. at 7.
8. Id. at 17.
9. Id. at 31.

10. Art.38 (1).
11. Art.39 (b)(c).
12. Art.48(1) and AIA(g).
13. Constituion of Item, Item 17 (State List)
14. Bombay Irrigation (Gujarat Amendment) Act 1976.
15. Supra n.6,p.1-13.
16. Supra, n.6 (also see Annexure-2)
17. The once proposed 64th and 65th Amendments to the Constituion.
18. For more details see, Chhatrapati Singh, Water Rights and Principles of Water Resources Management, Indian Law Institute, New Delhi, 1991.
19. 1990(1) K.L.T. 580
20. Chhatrapati Singh, P.K. Chaudhary and Rema Devi, Towards Energy Conservation Law, Indian Law Institute, New Delhi, 1989.

Source

Centre for Science and Environment, Second Citizens Report, The state of India's Environment, New Delhi, India, 1985

### Groundwater Potential and Use





## Annexure II

### IRMA, Workshop Report on Equity and Efficiency in Groundwater Management, Gujarat, India 1987

Table 2

Public Tube Wells : Their Performance, Efficiency and Equity

Authors	Study area	Capacity utilisation	Economic viability	Cost per hectare of irrigation relative to private tubewell	Timeliness in supply of water	Maintenance of tubewell	Access to small & marginal farmers	Remarks
1. Saksena	Macro level observation	40-50 (in some state like Bihar hardly 5%)	-	-	-	Very poor	-	(1) Irregular power supply (2) Absence of field channels (3) Unaccountability of IN operators (4) Cropping pattern not properly planned
2. Sharma (10)	North Bihar	hardly 10%	-	14 times	Unreliable	Inordinate delay in repair	Relatively less participation during drought and peak demand	(1) Hoof/tail distribution problem (2) Departmental procedure cumbersome for repair & maintenance (3) Indiscipline & corrupt IN operators (4) Maintenance of channel poor and (5) Feed along farm-ways
3. Singh	Eastern Uttar Pradesh (Deoria Dist.)	Some old public tube-wells were defunct; new World Bank aided, public tubewells are also following the same path.	-	More costly	Unreliable	Inordinate delay in repair	1. Small farmers do not get access during peak demand period 2. Delivery schedule is distorted in favour of large farmers.	(1) Irregular power supply (2) Wrong billing (3) Extreme example of privatization: Operators and IN look as if usually large farmers in case of World Bank aided new public tubewells.
4. Chawla Raghunishi & Kumar	Western Uttar Pradesh (Meerut & Shahjahanpur districts)	30-40 percent (overtaking their command area decreased.)	Uneconomical/ economic loss to public exchequer	-	Unreliable	Inordinate delay in repair	-	(1) Irregular electricity supply (2) Farmers still prefer water from state tubewells than private wells primarily for two reasons (i) no per discharge rate per unit of charge (ii) cheaper than private wells.
5. Sharma (VK)	Uttar Pradesh (Tara region East/West/ Central Uttar Pradesh at regional level)	-	-	Double per unit of water. (This is largely due to overhead cost.)	Unreliable	Inordinate delay in repair	-	(1) Some of the results obtained using linear programming technique, at regional level analysis could be questioned for example author finds increase supply of irrigation does not change optimum plan in western Uttar Pradesh. However, he again finds

Authors	Study area	Proportion command area irrigated	Economic viability	Cost per hectare of irrigation relative to private tubewell	Timeliness in supply of water	Maintenance of tubewell	Access to small & marginal farmer	Remarks
6. Saitish	Uttar Pradesh Gorakhpur, Varanasi, Lucknow and Aligarh Districts (48 tubewells)	96-118 percent	Yield less: all the crops irrigated with state tubewell received less no. of irrigation less & water each irrigation.	Compared to farms irrigated by private tubewells		Inordinate delay in repair of tubewell	84-90% are small & marginal farmers in command of tubewell need further investigation about relative share.)	<p>at micro level analysis that opportunity cost of electricity hour varies from Rs.70-150 on state tubewells; if we decrease electricity from 20 hours a day to 15 hours.</p> <p>(1) 30 percent farmers suggest inadequate power</p> <p>(2) 30 percent complained for inordinate in delay repair</p> <p>(3) 28 percent suggest need for alternative system to distribute water. This response was more prevalent in Gorakhpur where 25 out of 30 farmers suggest that DAC/TWC committees are not working.</p> <p>(4) Location of outlets also at wrong places.</p> <p>(5) System should also evolve for distribution of water in no demand period - to those who require it rather than rigidly following rotation.</p>
7. Saitish & Dhanan	Madhya Pradesh Jabalpur District	20 Percent	Benefit cost ratio 1:1.06 (Just breaks even)				88 percent small/marginal farmers in command & 60 percent of them are SC & ST; but relative share is not elaborated.	<p>(1) During 1983-84, 20 public tubewells were working out of 30 commissioned; five were not working for want of repair, and repayment of water charge, other five failed for one or the other reason.</p> <p>(2) Channels were not built when the survey was conducted.</p>

Annexure II (cont.)