

**Access to Natural Resource and Environmental Justice:  
case of Groundwater in India**

**Nandan Nawn**

Lecturer, National University of Juridical Sciences,  
LB 12 Salt Lake, Kolkata-700 098,

Phone: 91-33-2335 0765/0534/7379, Email: [nnletter@gmail.com](mailto:nnletter@gmail.com)

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## Abstract:

Environmental justice can be defined as *fair treatment* to all people irrespective of income, caste, class, gender, ability, religion etc. Society has been debating over the appropriate principles of justice and their constituents. One of them is equity that is appropriate for a resource that supports life. One of the sources of water, ground water has not received much attention in the past. One of the many ways of ensuring justice for accessing this resource is through regulations, for which the rights question is of crucial importance. Pre-colonial laws in India give a confusing answer, and specific legislation in this direction can be the only solution. Over the last four decades, there have been efforts in this direction. The paper analyses these developments in the context of ensuring environmental justice in terms of equitable access to the resource.

**Keywords:** Environmental Justice, Equity, Ground water, Ground water Regulations, Property Rights, Right to Water

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## 1. Introduction

Water is life. It provides essential support to all living organisms apart from having other uses, multiple and diversified in intensity and extent. Potable water is distributed across countries for geological reasons and are unrelated to any other factor, like population or level and nature of economic activity that influence and determine demand for this resource.

Historically availability of water determined location of civilisations. In recent times, the demand supply gap threatens to widen to such an extent that likelihood of water wars have increased over the access to this resource, if not 'clash of civilisations'. Conflicts are having wide range as well as dimensions. Unlike access to land or to the distribution of the products grown over it, the State is unaware of this problem. Across the world, governments as well as international institutions are debating to find ways and means for finding solutions. One of the many mechanisms is change in legal and institutional framework.

Of the two apparently distinct but hydrologically connected sources, historically surface water has grabbed much attention in contrast to ground water, perhaps due to its visibility and relatively easier management apart from political economic reasons related to its allocative mechanism. However, available evidence suggests that our dependence over ground water is increasing and soon it will be *the* source. There are other reasons as well-it provides a few advantages in contrast to surface water as a source; low development costs, absence of lumpiness of capital expenditure, wide availability, reliability especially in times of extreme climate, relatively containment free, requires minimal treatment, and so on<sup>1</sup>.

A recent report by the World Bank<sup>2</sup> mentions, groundwater management as one of the two key challenges that India's water economy is to face in the

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<sup>1</sup> For a fuller list, see table 2 in Stephen Foster et al., 'Groundwater in Rural Development: Facing the Challenges of Supply and Resource Sustainability' 3 (Washington DC: World Bank, 2000); UNEP, 'Scientific and Technical Advisory Panel to the Global Environment Facility: strategic options and priorities in groundwater resources', 4 (Washington DC: United Nations Environment Programme, 2004)

<sup>2</sup> World Bank, 'India's Water Economy: Bracing for a Turbulent Future', (New Delhi: Water Bank, 2005)

future, the other one being improvement in the quality and coverage of formal public water supply and irrigation, and for both role of the government is crucially important. In case of groundwater, the key is the regulation, it states. From the analysis of the experience at the global level, the report finds the key features of 'the least unsuccessful approach' groundwater management are: 'a legal framework which constrains the rights of people to pump as much water as they wish from their land; the separation of land rights and water entitlements, with the latter usually based on historical use; strong government presence to give legal backing for the development of participatory aquifer management associations and to provide the decision-support systems which enable aquifer associations to monitor their resource; and, above all, clarity that the primary responsibility for the maintenance of the resource on which they depend is with those who have entitlements to use water from a particular aquifer.'<sup>3</sup>

The legal and institutional framework described has the objective of managing the resource conforming to the principles of equity, stakeholder participation in allocative mechanism and sustainability—various components of environmental justice. This notion of environmental justice assumes much importance for the resources that are scarce, and there the principle of equity assumes additional importance. 'Justice is done when people get what they deserve'.<sup>4</sup> On this question, quite obviously different sections of the society have divergent opinions. The legislature is expected to weigh such claims and counter-claims, before deciding upon its codified form. In the absence of specific codes, the judiciary is to deal with this question within the broader constitutional framework, as has been done in this country in the past. Judicial remedy for conflicts has higher transaction costs for the society, especially in the absence of a specific statute that can allocate the resource.

Section 1 discusses notions of environmental justice while the question of rights that is central to the justice question is analysed in section 2 and in section 3 recent proposals mooted by the Central Government and acts

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<sup>3</sup> See World Bank, note 2 above, at 66

<sup>4</sup> Peter S Wenz, *Environmental Justice*, 23 [Albany: State University of New York Press, 1988]

enacted by the States are analysed in the context of theoretical framework discussed earlier.

## 2. Notion of Environmental Justice

The notion of justice has fairness as one of its aims. It provides an acceptable philosophical and moral basis for democratic institutions and also deals with the claims of liberty and equality.<sup>5</sup> To Rawls, the basic question is: 'viewing society as a fair system of cooperation between citizens regarded as free and equal, what principles of justice are most appropriate to basic rights and liberties, and to regulate social and economic inequalities in citizens' prospects over a complete life?'<sup>6</sup> This general question is applicable to any goods and services that affect an individual's welfare or utility and environmental goods are just one of them. However, over time, the importance of this specific type has certainly grown manifold, with increase in its influence over both the social and economic inequalities. Certainly, 'environmental justice is not a panacea for all social injustices'<sup>7</sup> but it provides an increasingly important and interesting insight towards broader questions of justice.

In situations where demand is more than supply, the allocation, in general, is concerned with the issue of justice. In situations of abundant supply, the justice question may not crop up at all. But over time, for any non-renewable resource (within a finite time period) like water, for which demand is increasing at a much faster rate than that of supply, scarcity is bound to happen in all societies, albeit at different points of time. For example, in 1999-2000, in Ontario, Canada, a creek 'disappeared' temporarily because of excessive taking from the local watershed,<sup>8</sup> despite the people's unrestricted

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<sup>5</sup> John Rawls, *Justice and Fairness: A Restatement 5* (Delhi; Universal Law Publishing, First Indian Reprint, 2004)

<sup>6</sup> See Rawls, note 5 above at 39 40 41

<sup>7</sup> Carolyn Stephens et al., 'Environmental Justice: Rights and means to a healthy environment for all', Introduction, (University of Sussex; ESRC Global Environmental Change Programme, 2001)

<sup>8</sup> One-fifth of the world's freshwater reserve is in Ontario, see, Canadian Environmental Law Association, 'Water Sustainability', <http://www.cela.ca/coreprograms/water.shtml>

access to abundant supplies of groundwater in the past.<sup>9</sup> In other words, members of the society faced with a scarce resource, would seek their fair share at some point of time, and for that purpose the allocation may be re-determined by modifying present arrangements within the governing institutions or altogether changing the institutions themselves.

For any finite resource, regulatory control is necessary irrespective of the arrangement of institutions. 'When restraint is necessary to preserve the environment, it seems that everyone should receive a fair share, and be restrained to a fair degree, in accordance with reasonable principles of justice. This is environmental justice'.<sup>10</sup> It '... mandates the right to ethical, balanced and responsible uses of land and renewable resources in the interest of a sustainable planet for humans and other living things'.<sup>11</sup> Quite obviously, in absence of voluntary cooperation over the allocation, the state can use force through laws without considering any form of environmental justice.<sup>12</sup>

Two basic premises of environmental justice are: first, 'everyone should have the right and be able to live in a healthy environment, with access to enough environmental resources for a healthy life', and second, 'it is predominantly the poorest and least powerful people who are missing these conditions'.<sup>13</sup> Other tenets like inter-country, inter-generational equity can be covered through extension of these basic principles.

For the purpose of analyzing the basic theory, environmental justice can be divided into two components: procedural and substantives<sup>14</sup>. The procedural aspect deals with the question as to whether all people irrespective of income,

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<sup>9</sup> Environmental Commissioner of Ontario, 2001, 'Ontario's Permit To Take Water Program And The Protection Of Ontario's Water Resources: Brief to the Walkerton Enquiry, available online at <http://www.eco.on.ca/english/publicat/walker01.pdf>

<sup>10</sup> See Wenz, note 4 above, at 10

<sup>11</sup> Third of Seventeen principles of Environmental Justice adopted at the First National People of Color Environmental Leadership Summit in Washington DC, October 1991, cited in Andrew Dobson, *Justice and the Environment: Conceptions of Environmental Sustainability and Dimensions of Social Justice* 23 (Oxford: Oxford University Press, 1998)

<sup>12</sup> Wenz argues that such force is not sufficient for complete replacement of justice and 'a sense of justice is required', See Wenz, note 4 above, at 13

<sup>13</sup> *id*

<sup>14</sup> Alternately, it can be explained in terms of two dimensions of social justice— participatory justice and distributive justice. See, Robert Figueroa and Claudia Mills, 'Environmental Justice', in Dale Jamieson, ed., *A Companion to Environmental Philosophy* 427 (Malden, Massachusetts and Oxford; Blackwell Publishers Limited, 2001)

caste, class, gender, ability, religion, etc. can meaningfully participate in the environmental decision making or not. The substantive part answers the following questions-first, who are the recipients of environmental justice; second, what is to be distributed; and, third, what is the principle of distribution?<sup>15</sup> This paper focuses on the substantive component; and in this, the subject is the access-poor citizens of a resource-rich developing country, India, where a majority of the people depend on agriculture for their living.

On the distributed good, however, a few qualifications are required.

Historically, the environmental justice movement in the west has focussed on the 'bads' and very recently it has included 'goods' as well.<sup>16</sup> One study<sup>17</sup> identifies three types of needs that require access to environmental goods or resources: physical like shelter, heat, clean air and water; economic like transport, infrastructure, shops, work; and aesthetic, mental and spiritual like green space, quietness, access to the countryside. As examples, the study cites lack of affordable warmth and food (or fuel poverty and food poverty), which are typical examples of market failure, and can be corrected by intervention of the government. However, the market cannot satisfy the principles of justice in all situations, groundwater being such an example, which has additional associated problems as well. Even if one eliminates the possibility of mightier cornering of all the resources, access to a scarce good without any restraint will result in 'tragedy of the commons' due to the inherent negative externalities originating from every use. In addition, there are multiple uses as well as users. Thus, the allocation has to be made by some agreed standard of justice including voluntary restraint so as to determine the 'fair share' of the members.<sup>18</sup>

The final question deals with the principles of distribution, like equality, equity, etc.<sup>19</sup> For example, the equality principle for environmental good

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<sup>15</sup> Derek Bell, 'Environmental Justice and Rawl's Difference Principle' 26(3) *Environmental Ethics* 290 (2004); for an alternative viewpoint of social justice that includes dispenser of justice and basic structure or options apart from the questions above, see, Andrew Dobson, *Justice and the Environment: Conceptions of Environmental Sustainability and Dimensions of Social Justice* 63 (Oxford: Oxford University Press, 1998)

<sup>16</sup> *id*

<sup>17</sup> See Stephens, note 7 above, at Section 2

<sup>18</sup> For the pure economic argument, see A Vaidyanathan, *India's Water Resources: Contemporary Issues on Irrigation* 129 141 (New Delhi: Oxford University Press, 2006)

<sup>19</sup> See Bell, note 15 above, at 63

transcribes into equal rights in contrast to equal burdens for environmental bads. Water, in general, has multiple uses and groundwater, in particular, is geologically distributed in such a manner that the equity principle is more appropriate, the paper considers. This rule calls for equal share to persons who are identical in all respects. However, differences can and do exist between people, and some of them are relevant so as to justify the different treatment of individuals. The question is: 'which differences should make a difference'.<sup>20</sup> There have been vigorous debates in the past in every sphere of society, and irrespective of the conclusion (if that exists ever!), the rule still holds. Different theories of justice perceive these differences differently, discussion on which is beyond the scope of the paper, which simply considers the principle.

One may note here is that, the particular principle of environmental justice which was accepted by society a few hundreds years ago, may not serve the purpose now owing to changes in the power of human beings, particularly with regard to technological advancement that has perhaps the most important influence on the environmental goods. Given the fact that different principles of justice are appropriate at different stages of technological development, as our principles take longer time to change than technologies, at any point of time, we may often face a conflict—that between the appropriate principle and the accepted one that has become obsolete. In this conflict, there are two set of problems. The first one is whether the situation has altered so much that calls for a change in the principle, and the second one deals with the choice among alternate environmental policies that are often contradicting each other. The appropriate choice, after all, cannot be independent of the principle of justice<sup>21</sup>.

Water serves multiple use: drinking, domestic, agricultural and industrial. Each of these activities uses surface as well as groundwater, and at times both. Of the four, agriculture accounts for 92%, drinking and domestic together 5%

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<sup>20</sup> See Wenz, note 4 above, at 23

<sup>21</sup> See Wenz, note 4 above, at 30

and industry uses 3%<sup>22</sup>. Keeping this in mind one of the focus areas of the paper is irrigation, one of the main uses in agriculture.

Over time, the share of groundwater as a source for irrigation has been increased dramatically. It accounted for 55.7 per cent of irrigation water in 1995-96 compared to 28.7 per cent in 1950-51. Correspondingly, the number of wells (both open wells and tubewells) increased from 20.9 millions to 53.5 millions during the same period. Between 1951 and 1994, in contrast to the increase in the total number of open wells and tubewells from 3.9 and negligible to 10.2 and 5.1 lakhs respectively, the number of energized among them increased from negligible for both types in 1951 to 7.2 and 5.1 respectively<sup>23</sup>. Factors responsible for such a rapid growth are many— financial assistance to farmers, ‘below-cost’ supply of energy in rural areas, rural electrification, absence of any form of water charges from the supply side and increased requirement for water as an input for ‘green revolution’ technology-based production systems, from the demand side.

A number of studies apart from anecdotal evidences, have pointed out that in different parts of the country the water table is getting lower, resulting in an increase in the length of well depth, as well as a fall in well yields.<sup>24</sup> In Gujarat, for example, a study reports that the average depth at which submersible pumps are suspended has fallen from 100 ft in 1971 to 450 ft in 1996.<sup>25</sup>

It is quite clear that the situation is alarming and society needs to change the environmental policy pertaining to this particular resource. The government has also recognized this position, stating that ‘Complex issues of equity and social justice in regard to water distribution are required to be addressed’.<sup>26</sup>

The rules and regulations for this purpose will

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<sup>22</sup> World Resource Institute, as cited in Developing Alternatives, ‘The characteristics of Water in India’, available online at <http://www.devalt.org/water/WaterinIndia/characteristics.htm#Water%20Resources>

<sup>23</sup> For details, see Table-2 and Table-3.

<sup>24</sup> See Table-1 for a list of State-wise districts with fall of water level.

<sup>25</sup> Navroz K Dubash, *Tubewell Capitalism: Groundwater Development and Agrarian Change in Gujarat* 5 (New Delhi: Oxford University Press, 2002); also see the Map 1, showing Over Exploited and Dark (Critical) Blocks, published by Central Ground Water Board, Ministry of Water Resources, Government of India.

<sup>26</sup> Ministry of Water Resources, ‘National Water Policy’ para 1.6 (New Delhi; Government of India, 2002).

- (i) define the general principles governing the nature and content of rights of access and use;
- (ii) set up institutional mechanisms and procedures for assigning these rights, monitoring their observance, and enforcing their compliance;
- (iii) specify the role and structure of institutions (state, private, and other non-governmental) responsible for discharging these functions in respect of specific resources and the procedures they are expected to follow;
- (iv) create mechanisms and procedures for resolving disputes and conflicts over these resource.<sup>27</sup>

In this paper, the focus is on the first aspect only, with occasional reference to the others.

### 3. The Rights Question

Water right is a 'natural' right, 'arising out of the historical conditions, basic needs or notions of justice with reference to either human nature or that of society', in contrast to legal or contractual right.<sup>28</sup> The question on nature and extent of right assumes importance owing to the multiple and often conflicting uses and large number of users across caste, class, gender, ability, religion etc. For the purpose of achieving environmental justice the broad areas of policy and practice where changes are required includes rights and responsibilities.<sup>29</sup> 'The basis for determining entitlements and priorities of various uses and users, devising regulatory mechanisms to mediate between competing claims .... – in short, the legal and institutional framework relating to water—has thus become a very important and urgent issue'.<sup>30</sup> Water laws are supposed to 'prioritise and rank various uses of water, drinking, domestic, agricultural and industrial (and perhaps in that order)'.<sup>31</sup> For the government, at the policy level, water allocation priorities, in general, are in the following order: Drinking water, Irrigation, Hydro-power, Ecology, Agro-industries and non-

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<sup>27</sup> See Vaidyanathan, note 18 above, at 130

<sup>28</sup> Chhatrapati Singh, 'Water Rights in India', in Chhatrapati Singh eds, *Water Law in India* 10 11 12 (New Delhi; Indian Law Institute, 1992)

<sup>29</sup> See Stephens, note 7 above, at section 3

<sup>30</sup> See Vaidyanathan, note 18 above, at 132

<sup>31</sup> See Singh, note 28 above, at 9

agricultural industries, Navigation and other uses.<sup>32</sup> The moot question is whether the legislation incorporates such prioritisation.

Looking at the notion of water rights from the lens of human rights is of limited use. Nevertheless, it may be worthwhile to note that, right to clean drinking water for survival and for basic human necessities alone can qualify to become the human right, keeping in mind the basic water requirement in quantity terms that can be considered as a fundamental need. Indeed highest tiers of judiciary of the country has also recognised right to enjoy pollution free water for drinking purposes within the ambit of 'right to life', a fundamental right. The courts have held that right to water for other purposes, including irrigation can at most amount to a right conferred under article 300-A of the Constitution or a statutory right.<sup>33</sup> Further, General Comment 15 adopted in November 2002 by the UN Committee on Economic, Social and Cultural Rights, states that, 'The human right to water entitles everyone to sufficient, safe, acceptable, physically accessible and affordable water for personal and domestic uses. An adequate amount of safe water is necessary to prevent death from dehydration, to reduce the risk of water-related disease and to provide for consumption, cooking, personal and domestic hygienic requirements.'<sup>34</sup>

Water rights in India have been both pre-capitalist customary group type as well as post capitalist individual type.<sup>35</sup> On the face of competing claims, identification and delimitation of each of them is one the most central and basic issues in water law.<sup>36</sup> Apart from the conflict between different uses, there are other dimensions as well: among users for the same use, between the

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<sup>32</sup> See Ministry of Water Resources, note 26 above, at para 5. The document recognises that 'Drinking water needs of human beings and animals should be the first charge on any available water' (para 8) and that 'Water allocation in an irrigation system (from surface water sources) should be done with due regard to equity and social justice' (para 9.3).

<sup>33</sup> Tony George Puthucherril, 'Water Resources Management Law: A Case Study with Reference to the State of Kerala' 13 (Kolkata; West Bengal National University of Juridical Sciences, M Phil Dissertation Thesis, *mimeo*, 2003)

<sup>34</sup> Committee on Economic, Social, and Cultural Rights, 'Substantive issues arising in the implementation of the International Covenant on Economic, Social, and Cultural Rights, General Comment No. 15' Para 2 (Geneva; UNCESCR, 2002) as cited in World Health Organisation, 'Right to Water' 12 (Geneva; World Health Organisation, 2003)

<sup>35</sup> See Singh, note 28 above, at 13

<sup>36</sup> Shilpi Bhattacharya, 'Rights of the State vis-à-vis the Community to Water', 1 *Indian Juridical Review* 218 (2004)

State and the individual, among States and finally between the State and the Centre. It is well established that the Indian Constitution clearly vests the exclusive power to the States for regulating groundwater<sup>37</sup>. In the absence of State acts, the common law prevails (inherited from British common law) read with the Indian Easements Act, 1882.<sup>38</sup> Illustration (g) of Section 7<sup>39</sup> of this act entitles an owner of land to extract water and other resources beneath the land without any limit, subject only to the condition that such extraction must not adversely affect the availability to neighbouring users. Two English decisions suggest that inconvenience to neighbours, even when a prior user of water may not have further access due to over-exploitation by co-user(s), cannot become a ground for legal action. In *Chesmore v. Richards* (1859) and *Acton v. Blundell* (1843)<sup>40</sup>, courts held the position that neither it is an injury to the riparian right and nor the easement rights can be invoked, and thus cannot be treated as actionable wrong. Over the years, the judicial positions indeed have changed in other countries, including US. As the country has inherited the same British jurisprudence, it will of interest to have a brief glance at this development<sup>41</sup>.

The earliest position of absolute ownership doctrine, which originated in England, reflected the court's position in the above cases as well as *Roath v. Driscoll* (1850)<sup>42</sup> in United States. In the latter court held that 'water... is not, in the eye of the law, distinct from the earth'. 'Rights in groundwater belongs to the land owner, since it forms part of the dominant heritage' and '[i]n short,

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<sup>37</sup> Ramaswamy R Iyer *Water: Perspectives, Issues, Concerns* 101 (New Delhi; Sage, 2003)

<sup>38</sup> P Ishwara Bhat, 'A Comparative Study of Groundwater Law and Policy in South India', 1 *Indian Juridical Review* 25 26 (2004)

<sup>39</sup> It reads: "The right of every owner of land to collect and dispose within his own limits of all water under the land which does not pass in a defined channel...", where defined channel means a contracted and bounded channel, even though the course of the stream may be undefined by human knowledge.

<sup>40</sup> A Lakshminath and M Sridhar, *Ramaswamy Iyer's Law of Torts*, (New Delhi; Ninth Edition, LexisNexis Butterworths, 2003)

<sup>41</sup> For details see Lawrence J Macdonnell, 'Rules Guiding Groundwater Use in the United States', 1 *Indian Juridical Review* 43 (2003); Joseph Sax et al., *Legal Control of Water Resources: Cases and Materials* 359 (St. Paul, Minnesota; West Group, Third Edition, 2000); George A Gould and Douglas L Grant, *Cases and Materials on water Law* 331 (St. Paul, Minnesota; West Group, Sixth Edition, 2000); Stefano Burchi, 'National Regulations for Groundwater: Options, Issues and Best Practices', 2 (Rome: Food and Agriculture Organization, 1999)

<sup>42</sup> See Macdonnell, note 41 above, at 43

groundwater is attached, like a chattel, to land property'<sup>43</sup>. While uncertainties about the mechanics of the groundwater perhaps led the courts to accept one use affecting the other one, even if concrete evidence was available, 'courts tended to favour new uses—especially ones with considerable economic importance such as mining—to occur because of their strong commitment to private enjoyment of property'.<sup>44</sup> In the strict legal sense, this is based on the *ad coleum* principle<sup>45</sup>. By the end of the nineteenth century, with increased understanding over hydrology, New York states highest court in *Forbell v. City of New York* (1900) recognised that one property owner's 'unreasonable' use of groundwater could unacceptably harm another property owner's ability to also use of groundwater, especially when the defendant is to transfer the water somewhere else and thus preventing its return. The court felt that 'groundwater development and use is reasonable, for about any purpose, so long as it occurs on the land surface from under which the water was withdrawn'.<sup>46</sup> Subsequently number of other state courts rejected absolute ownership doctrine and adopted this 'reasonable use' doctrine

Around the same time, in another part of the United States, a parallel development was taking place that swung the pendulum back. In 1903 California Supreme Court being concerned over the insufficient protection to the interests of the property owners, formulated correlative rights rule. This rule considers the groundwater as a 'common supply' for all property owners having access to it by their 'natural situation'. 'The natural rights . . . would therefore be coequal, except as to quantity, and correlative'.<sup>47</sup> Finally one may mention the prior appropriation doctrine, where withdrawals must be for 'beneficial' use, and as the name suggests, this standard protects the ones who

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<sup>43</sup> See Singh, note 28 above, at 18

<sup>44</sup> See Macdonnell, note 41 above, at 49

<sup>45</sup> Herbert Broom, *Brooms Legal Maxim* 259-60 (1993) as cited in Puthucherril, note 33 above, at 41

<sup>46</sup> *id*

<sup>47</sup> A later decision in 1975 [*Tehachapi-Cummins Country Water District v. Armstrong*, 1975] by California Apellate Court elaborated the doctrine as follows: 'each (overlying owner) has a common right to take all that he can beneficially use on his land if the quantity is sufficient; if the quantity is insufficient, each is limited to his proportionate fair share of the total amount available based upon his reasonable need. The proportionate share of each owner is predicated not on his past use over some specified period of time, nor on the time he commenced pumping, but solely on his current reasonable and beneficial need for water'. *Hudson v. Dailey* (1909) as cited in Puthucherril, note 33 above, at 41.

first developed and used groundwater against specific types of harm caused by later appropriators.

Quite clearly, absolute ownership doctrine has overrun its course long time ago<sup>48</sup>, and lasted on ventilator for some timer due to imperfect information on the nature of aquifers. 'Reasonable use' doctrine may be in perfect order for a primarily agricultural primitive society whose energy needs do not require sizeable share of water for cooling of thermal power stations, 'off the field'. 'Rules and institutions that allocate and manage entire functional aquifers and that do so on the basis of safe yield or some other socially acceptable standard seem better suited to today's needs'.<sup>49</sup> Indeed, notion of environmental justice, keeping in mind the right to drinking water as human right, the negative right must be transformed to a positive one, and that too a statutory right. For other needs, including irrigation, groundwater laws of the states must ensure equity principle.

#### 4. Groundwater Legislation—contrasting international experience and Indian case

The basic feature of environmental injustice in terms of inegalitarian allocation is the joint ownership right of land and usufruct right of water<sup>50</sup>—this is common to ancient Roman law, French Napoleonic Civil Code (including France, Spain and many African and Latin American countries) and Anglo-Saxon common law jurisprudence<sup>51</sup>. This perception and treatment of groundwater as a private resource thwarts any 'measure of equity and control over abstraction and protection of the resource base'.<sup>52</sup> In contrast,

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<sup>48</sup> For various kind of injustices that result because of this principle, including making of 'water-lords' like soft drink MNCs at the cost of thousands of people dependent on the same water source and many others see, Anshul Prakash and Yousa Lachenpa, 'Bid adieu to *Ad Coleum*: Water lords, MNCs and bias in the Law', 1 *Indian Juridical Review* 252 (2004)

<sup>49</sup> See Macdonnell, note 41 above, at 65

<sup>50</sup> Historically the water laws have focused on the surface water, and only in the last hundred years or so, legislations contain specific legal pronouncements pertaining to groundwater management and its use. [S Hodgson, 'Land and Water—the rights interface' 73 (Rome; FAO, 2004)]

<sup>51</sup> For details, see Marcella Nanni et al., 'Groundwater Legislation & Regulatory Provision: from customary rules to integrated catchment planning', (Washington DC; GW-Mate Core Group, World bank, 2002), FAO, 'Groundwater Management: The Search for Practical Approaches', 23 (Rome; FAO, 2003) and Hodgson, note 50 above, at 73

<sup>52</sup> Jacob Burke et al., 'Groundwater and Society: Problems in Variability and Points of Engagement', in Salman A Salman, ed., *Groundwater: legal and policy perspectives: proceedings of a World Bank seminar* 49 (Washington DC; World bank, 1999)

Moslem tradition holds water as a public or communal commodity, and no well can be dug in the vicinity of an already existing well (known as *harim*, forbidden area).<sup>53</sup> With increase in number of uses, users and the consequent concurrent developments of a common resource, conflicts are bound to arise. They get resolved through usual judicial remedy, which has significant social cost. For lowering this cost, it is always beneficial to have regulations of groundwater extraction and use. Indeed, over the last few years, number of activities related to groundwater, including and not limited to digging, construction of wells as well as its use and extraction have been brought under direct control of the governments. Usual procedure includes seeking permit or authorization for digging or drilling wells, with more stringent terms and conditions attached to mechanised ones. It may be in the form of relaxed norms or even a complete waiver for manually operated wells, or for specific depth, or for specific uses like domestic and other household needs.<sup>54</sup>

Over time, the legislations across the world have bestowed 'public property' status on groundwater and increasingly it is 'losing the intense private property connotation it has traditionally had and that user rights in it no longer accrue from ownership of overlying land but from a grant of the Government or of the courts'.<sup>55</sup> This translates a move towards positive right to water and thus a change in the role of the state. Such a status accrues from legislations in the form of 'statutory vesting of the resource in the public domain of the state' or 'statutory vesting in the state of superior user rights', or 'statutory vesting in the State of a public trust on behalf of the people'; or from the judicial pronouncements (for example 'public trust' doctrine)<sup>56</sup>. The legislations, have consistently been justified by the US Courts and Spanish Constitutional Courts in the face of compensation claims, 'on the grounds that such vesting was justified by the superior common good pursued by the legislation ...'.<sup>57</sup>

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<sup>53</sup> Stefano Burchi, 'National Regulations for Groundwater: Options, Issues and Best Practices', 2 (Rome: Food and Agriculture Organization, 1999)

<sup>54</sup> See, Burchi, note 53 above, at 3

<sup>55</sup> See, Burchi, note 53 above, at 14

<sup>56</sup> See Hodgson, note 50 above, at 77 78

<sup>57</sup> See Hodgson, note 50 above at 4

A 'public property' can only have usufructory rights for the individuals, be it landowners or any other developer, under some terms and conditions. Such terms may specify the duration of the right, rate of extraction, purpose, water duty based on the crops historically grown among other things etc.<sup>58</sup>. The rights are not static and dynamic in nature; the State may reallocate the water to some other use or new user, and consequently the rights also undergo revision. In case of emergency, or non-compliance, rights may be suspended. Moreover, in the face of depletion of groundwater or 'mining', in general, stricter regulatory restrictions become applicable in control areas or districts, and thereby all rights may be curtailed which may have been upheld in other districts, or during a different point of time in the same area<sup>59</sup>.

In order to influence the demand for water that is certain to exceed supply in near or not so distant future if not at present, most of the countries use water abstraction charges. The rate structure may vary—for some purpose, like drinking water or for a specified quantity it may be zero, and subsequently it is non-zero depending on volume, area, location and so on. In some countries the rate is even higher than that of surface water, reflecting the relative scarcity of the resource. In almost all the cases, the proceeds are used for research, purchase of rights, etc<sup>60</sup>.

In India, as stated above, the common law tradition holds that groundwater is a chattel to the overlying land<sup>61</sup>. Landowners generally regard wells as theirs own and view others, including the government, as having no right to restrict or otherwise control their right to extract water.<sup>62</sup> At the same time 'Easement and the irrigation laws ... simply translate sovereignty into ownership or absolute rights of ... government in all natural water... [similar to] other natural resource laws, such as the Forest Act or the Land Acquisition Act'.<sup>63</sup>

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<sup>58</sup> For a complete list, see, Table 1 in Hector Garduño et al., 'Groundwater Abstraction Rights: from theory to practice', 2 (Washington DC; GW-Mate Core Group, World Bank, 2002). Also See Hodgson, note 50 above, at 78

<sup>59</sup> See Garduño et al., note 58 above, at 7 8

<sup>60</sup> See Garduño et al., note 58 above, at 8 9

<sup>61</sup> For a historical overview of water laws, see, Iqbal Ahmed Siddiqui, 'History of Water Laws in India', in Chhatrapati Singh, eds, *Water Law in India* (New Delhi; Indian Law Institute, 1992)

<sup>62</sup> World Bank, 'India Water Resources Management Sector Review: Groundwater Regulation and Management Report', 19 (Washington DC; World Bank, 1998)

<sup>63</sup> See Singh, note 28 above, at 27

Such vesting of absolute rights by the society over its resources to someone else must be possible with corresponding duties. Further, the concerned laws were enacted by the colonial powers, 'who tacitly proclaimed sovereign rights in the laws, such as concerning water and forest laws'.<sup>64</sup> For such priority of right of the state, corresponding duties must come, and then Easement Act and Irrigation laws need to be reworked, which 'would also be necessitated by the mandate of the Constitution—Article 39(b), (c), which states that all resources of the country must be used only for the common good'.<sup>65</sup> The common good or public purpose needs to clearly identify the 'public', their 'rights' and the 'purpose'. Unless it is done, 'it is ... unlikely that the poor sections of the society will be empowered to claim their rights to water when the state plans to change the users or water use'.<sup>66</sup>

The Indian Constitution has given the States the power to regulate water resources, including groundwater through entry 17, list II, Seventh Schedule. Federal management of groundwater began with the decision of the Supreme Court in *M C Mehta v. Union of India* (1997) mandating the Central Government to act and address various aspects of problems related to groundwater and establish the Central Groundwater Board (CGWB) as a Groundwater Authority (GWA), with a complementary authority in each State. The decision is significant on two counts---first, the states could not take almost any measure for a long time, and second, geologically there is no reason to assume that an aquifer will respect the political boundary of the states, and even countries<sup>67</sup>. In this connection, efforts by the Centre ranged from policy recommendations<sup>68</sup>, to circulation of model groundwater bills and

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<sup>64</sup> See Singh, note 28 above, at 28

<sup>65</sup> *id*

<sup>66</sup> See Singh, note 28 above, at 29

<sup>67</sup> Perhaps, due to our limited knowledge and invisible nature of the resource, this issue has not cropped up till now.

<sup>68</sup> The National Water Policy 1987 does mention that groundwater exploitation should be regulated with reference to recharge possibilities and considerations of social equity. NWP 2002 also has acknowledged the concern over overexploitation of groundwater resources in certain parts of the country and has called for judicious and scientific resource management and conservation. But both these documents remain mere policy statements, without making any observation on the changes that might be needed in the legal/constitutional framework for successful implementation of the propositions (See Iyer, note 37 above)

rules. The latest in the series of recommendations is the model bill<sup>69</sup> that has been proposed by the Centre very recently for the states to enact. Perhaps due to this advice, a few states have enacted ground water legislations<sup>70</sup>.

Beginning with the 1970 proposal, control of ground water is to take place through notification of the affected area. Post notification, any user of tubewell, artesian well or bore well is to take license under stipulated conditions. This condition is to apply for both new as well as existing users. Issue of license was proposed to be subject to availability, quality of groundwater, well density and other relevant factors. It is interesting to note that even then, some notion of prioritization of uses existed. The bill stated that, '[u]ser of wells in agricultural land was not to divert water for non-agricultural purposes or to waste water. Use of water for other purposes was subject to prior permission of the authority'.<sup>71</sup> The draft, perhaps due to uncertainties pertaining to the resource did not include any control of volume of withdrawal or possibility of quantification of annual safe yield.

After a gap of two decades, an improved version of the bill was re-circulated in 1992. Note that, unlike the exception in the State acts for ground water extraction for domestic use (including drinking purposes) from license requirements, the bill stated that '[n]o user of groundwater, excepting small and marginal farmers, were allowed to sink any well in the notified area' without permission from authority. One additional feature of the bill was requirement of registration for providers of well sinking services. This provision found inclusion in number of state acts, signifying the general trend in bringing the key service providers within regulatory control as well as for standardisation.

Then came the 1996 bill, which was roughly similar 1996-similar to 1992, apart from including factors such as spacing of groundwater structures, long term groundwater level behaviour etc., for consideration by the authority for

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<sup>69</sup> Ministry of Water Resources, 2005, 'Model Bill to Regulate and Control the Development and Management of Ground Water', Ministry of Water Resources, Government of India, available online at [http://www.wrmin.nic.in/cgwb\\_modelbill.pdf](http://www.wrmin.nic.in/cgwb_modelbill.pdf)

<sup>70</sup> See Table 5 for the list along with relevant features.

<sup>71</sup> See Bhatt, note 38 above, at 30

grant of license. These features are included in all the state acts, and some have additional factors as well.

As a consequence of decision of the Supreme Court in *M C Mehta v Union of India* (Ground water case) setting up of Central Ground Water Board had become inevitable for regulating the indiscriminate boring and withdrawal of ground water in the country. At the same time comes the Draft groundwater rule, 1998<sup>72</sup> for constituting Central Ground Water Authority (CGWA), with functions such as recommendation of norms for groundwater allocation for various purposes and prioritising them<sup>73</sup>. In 2001, a revised version of the 1998 draft was circulated titled Ground Water (Development, Protection and Management) Rules, 2001. In contrast to the earlier draft, the rules were proposed to be applicable only in the notified areas and in addition, factors to be considered for notifying an area were made more elaborate<sup>74</sup>.

The final entry, the 2005 Model Bill, for obvious reasons, incorporated all the features of the past exercises. The bill is an improved version of the earlier bills, and is very similar to most of the State acts. There are certain basic and common features between this model bill and State acts, from the point of view of access to ground water, which is given in annexure 1. Relevant features of the State acts are given in table 5.

It would be unfair to paint the State acts in absolutely negative light while looking through the environmental justice lens. All acts do prioritise drinking water, and that too for 'public purpose' and imposes restrictions on groundwater abstraction for any other use including drinking water for private use, if the latter comes in conflict with the former. Restrictions vary from spacing requirements to regulating lifting devices, with the additional control over transportation of water beyond a limit from specified area. What is clear that legislations do give powers to the authorities for taking measures at the time of scarcity, which can be termed as 'crisis management' as its best

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<sup>72</sup> Proposed under the framework of Environment Protection Act, 1986. It was subsequently revised as Groundwater (Development, Protection and Management) Rules, 2001

<sup>73</sup> See Bhatt, note 38 above, at 31

<sup>74</sup> The rule is still in the draft stage. As late as in 2002, Regional Directors and Members of CGWB/CGWA met on 8th May, 2002 for finalization of the Ground Water (Development Protection and Management) Rules. [CGWB, 'Annual Report 2003-03', 150 (New Delhi; Central Ground Water Board; 2003)]

description. But we do not know how the management will be in 'normal' times, in terms of prioritising water uses as well as ensuring equity in allocation or any other principles of justice.

One must add here that, one of the major limitations of implementation of groundwater legislations is monitoring, in contrast to surface water; in case of latter, identification of possible abstraction points is easy, and thus less costly. For illegal abstraction, usual proceedings follow, but like the power theft, there is no reason to assume that the offence will not be repeated again and again, as the instrument for such action, namely land above the aquifer will remain with the offender<sup>75</sup>. In such a situation, 'perhaps the solution is to re-examine the relationship between land tenure rights and rights to use the water beneath that land'.<sup>76</sup> One option is to re-connect rights to groundwater with the land above that would enable those who hold rights to make decisions concerning the management and use. Such an option, despite its obvious benefits in terms of sustainability, fails to cater to the requirements of environmental justice, as the resource will be inaccessible to large sections of population in such a situation. Rather the option could be 'water to the user' like 'land to the tiller' for agricultural operations, without any charge for non-mechanised operations, for specific crops. As crops, lifting device, use change, rate can progressively vary. Further, similar to land, commercial operations can be charged at the highest, and for preventing arbitrage, transportation of water in raw or packaged form may be controlled.

## 5. Concluding Remarks

A young democracy like India perhaps will spent some more time in incorporating principles of environmental justice in the concerned regulations. In the United States, the development started more than two hundred years ago, and process is still on. Clearly, the laudable efforts of the judiciary in this regard has its own limitations, and a society will gain much more in having a comprehensive policy framework and associated statutes for implementation. With historically marginalized groups asserting their claims,

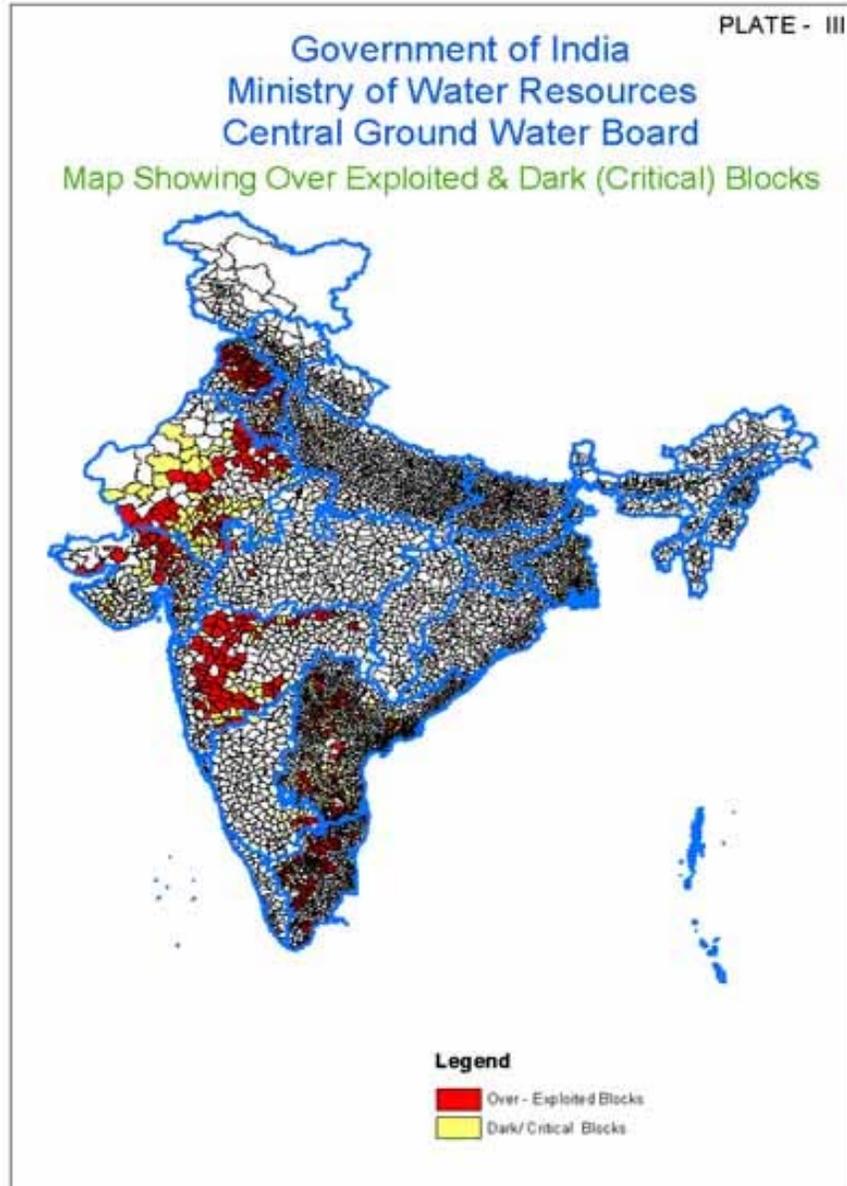
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<sup>75</sup> See Hodgson, note 50 above at 80

<sup>76</sup> See Hodgson, note 50 above at 81

and various civil society organisations ably supporting them, those days are not far off.

MAP 1



**Table 1**

Name of Districts showing fall of water level (in parts) of more than 20 cm per year during Pre-Monsoon period

<b>State/ UT</b>	<b>1981-2000<sup>77</sup></b>	<b>(1995-2004)<sup>78</sup></b>
Andhra Pradesh	Adilabad, Ananthapur, Chittoor, Cuddapah, East Godavari, Guntur, Hyderabad, Karimnagar, Khammam, Krishna, Kurnool, Mahabubnagar, Medak, Nalgonda, Nellore, Nizamabad, Prakasam, Rangareddi, Srikakulam, Vizianagaram, Visakhapatnam, Warangal, West Godavari	Adilabad, Anantapur, Chittoor, Cuddapah, East Godavari, Guntur, Hyderabad, Karimnagar, Khammam, Krishna, Kurnool, Mahabubnagar, Medak, Nalgonda, Nellore, Nizamabad, Prakasam, Ranga Reddy, Srikakulam, Visakhapatnam, Vizianagaram, Warangal, West Godavari
Assam	None	Jorhat, Nagaon, Sonitpur
Bihar <sup>79</sup>	Dhanbad, Purb Singhbhum, Darbhanga	Bhagalpur, East Champaran, Munger, Muzaffarpur, Navada, Saharsa, Saran
Chhattisgarh	Bastar, Bilaspur, Durg, Raigarh, Raipur, Rajnandgaon, Satna, Sidhi	Bastar, Bilaspur, Dhamtari, Durg, Janjgir-champa, Kanker, Kawardah, Koriya, Mahasamund, Raigarh, Raipur, Rajnandgaon, Surguja
NCT of Delhi <sup>80</sup>	Mehrauli, Najafgarh and City block	New Delhi, North West, South, South West
Gujarat	Ahmedabad, Amreli, Banaskantha, Bharuch, Bhavnagar, Jamnagar, Junagadh, Kheda, Kutch, Mehsana, Rajkot, Surat, Surendranagar	Ahmedabad, Amreli, Banashkantha, Bharuch, Bhavnagar, Dangs, Gandhinagar, Jamnagar, Junagarh, Kheda, Kutch, Mehsana, Panchmahal, Rajkot, Sabarkantha, Surat, Surendranagar, Vadodara, Valsad
Haryana	Ambala, Bhiwani, Faridabad, Gurgaon, Hisar, Jind, Kaithal, Karnal, Kurukshetra, Mahendergarh, Panipat, Rewari, Rohtak, Sonapat, Yamunanagar	Ambala, Bhiwani, Faridabad, Fatehabad, Gurgaon, Hissar, Jhajjar, Jind, Kaithal, Karnal, Kurukshetra, Mahendragarh, Panipat, Rewari, Rohtak, Sirsa, Sonipat
Himachal Pradesh		Kangra, Kullu, Mandi, Sirmur, Solan, Una
Jharkhand		Dhanbad, Dumka, Hazaribagh, Lohardaga, Pacchim Singhbhum, Palamu, Purvi Singhbhum, Ranchi
Jammu & Kashmir		Jammu, Kathua, Rajouri, Udhampur
Karnataka	Bangalore (Rural), Bellary, Belgaum, Bidar, Bagalkot, Bijapur, Chitradurga, Devangiri, Dharwar, Gadag, Gulbarga, Haveri, Hassan, Kolar, Mysore, Chamarajanagar, Raichur, Shimoga, Kapor, Tumkur, Uttara Kannada.	Bagalkot, Bangalore, Belgaum, Bellary, Bidar, Bijapur, Chamrajnagar, Chikmagalur, Chitradurga, Coorg, Dakshin Kannada, Dharwad, Gadag, Gulbarga, Hassan, Haveri, Kolar, Koppal, Mandya, Mysore, Raichur, Shimoga, Tumkur, Udupi, Uttar Kannada
Kerala		Idduki, Kanoor, Kasargod, Kollam, Kottayam, Mallapuram, Palakkad, Thiruvananthapuram, Thrissur, Wayanad
Madhya Pradesh	Betul, Bhind, Chhatarpur, Chhindwara, Damoh, Datia, Dewas, Dhar, Guna, Gwalior, Indore, Jabalpur, Katni, Khandawa, Khargone, Mandsaur, Morena, Narsingpur, Neemuch, Panna, Raisen, Rajgarh, Ratlam, Sagar, Sehore, Shajapur, Shivpuri, Ujjain, Vidisha	Barwani, Balaghat, Betul, Bhind, Bhopal, Chhatarpur, Chhindwara, Damoh, Datia, Dewas, Dhar, Dindhori, Guna, Gwalior, Harda, Hoshangabad, Indore, Jabalpur, Jhabua, Katni, Khandwa, Mandsaur, Morena, Mandla, Narsingpur, Neemuch, Panna, Raisen, Rajgarh, Ratlam, Rewa, Sagar, Satna, Sehore, Seoni, Shahdol, Shajapur, Sheopur, Shivpuri, Sidhi, Tikamgarh, Ujjain, Umariya, Vidisha, West Nimar

<sup>77</sup> Source: Lok Sabha starred question no. 8 answered on 15.7.02

<sup>78</sup> Source: Lok Sabha starred question no. 3, answered on 25.7.05

<sup>79</sup> For 1981-2000, data includes Jharkhand

<sup>80</sup> For 1995-2004, data is for Delhi only

Maharashtra	Ahmednagar, Akola, Beed, Bombay, Dhule, Gadchiroli, Kolhapur, Nanded, Nashik, Osmanabad, Amravati, Aurangabad, Bhandara, Buldhana, Chandrapur, Jalgaon, Jalna, Latur, Nagpur, Parbhani, Pune, Ratnagiri, Sangli, Sindhudurg, Thane, Satara, Solapur, Wardha, Yavatmal	Ahmadnagar, Akola, Amravati, Aurangabad, Beed, Bhandara, Buldana, Chandrapur, Dhule, Gadchiroli, Gondia, Hingoli, Jalgaon, Jalna, Kolhapur, Latur, Mumbai, Nagpur, Nanded, Nandurbar, Nashik, Osmanabad, Parbhani, Pune, Raigad, Ratnagiri, Sangli, Satara, Sindhudurg, Solapur, Thane, Wardha, Washim, Yavatmal
Orissa	Angul, Balasore, Bargarh, Bolangir, Dhenkanal, Gajapati, Ganjam, Jajpur, Kalahandi, Keonjhar, Khurda, Koraput, Malkangiri, Mayurbhanja, Nawapara, Nawarangpur, Sundargarh, Suvarnapur	Angul, Baleshwar, Bargarh, Cuttack, Dhenkanal, Ganjam, Jajpur, Jharsuguda, Kalahandi, Koraput, Kendujhaar, Mayurbhanj, Nawapara, Phulbani, Puri, Rayagada, Sambalpur, Sundargarh
Punjab	Amritsar, Bathinda, Fatehgarh, Ferozepur, Jalandhar, Kapurthala, Ludhiana, Moga, Nawanshahi, Patiala, Ropar, Sangrur	Amritsar, Bhatinda, Faridkot, Fatehgarh, Ferozepur, Gurdaspur, Hoshiarpur, Jalandhar, Kapurthala, Ludhiana, Mansa, Moga, Nawanshahi, Patiala, Ropar, Sangrur
Rajasthan	Ajmer, Alwar, Bhilwara, Dungarpur, Ganganagar, Jaipur, Jaisalmer, Jhalawar, Jhunjhunu, Jodhpur, Nagaur, Pali, Rajsamand, Sikar, Udaipur	Ajmer, Alwar, Banswara, Baran, Barmer, Bharatpur, Bhilwara, Bikaner, Bundi, Chittorgarh, Churu, Dausa, Dholpur, Dungarpur, Hanumangarh, Jaipur, Jaisalmer, Jalore, Jhalwar, Jhunjhunu, Jodhpur, Karauli, Kota, Nagaur, Pali, Rajsamand, Sawaimadhopur, Sikar, Sirohi, Tonk, Udaipur
Tamil Nadu	Coimbatore, Cuddalore, Dharmapuri, Kancheepuram, Kanyakumari, Madras, Pudukottai, Sivagangai, Tanjavur, Theni, Tirunelveli, Thiruvallur, Tiruvannamalai, Thiruvannamalai, Tuticorin .	Chennai, Coimbatore, Cuddalore, Dharmapuri, Dindigul, Erode, Kancheepuram, Kanyakumari, Karaikal, Karur, Madurai, Namakkal, Nilgiri, Perambalur, Ramanathapuram, Salem, Sivaganga, Thanjavur, Theni, Tiruchirappalli, Tirunelveli, Thiruvallur, Tiruvannamalai, Tuticorin, Vellore, Vellupuram, Virudhanagar
Uttar Pradesh <sup>81</sup>	Agra, Aligarh, Allahabad, Budaun, Bijnor, Bulandshahar, Etah, Etawah, Farrukhabad, Fatehpur Ghaziabad, Hardoi, Kanpur, Lucknow, Mathura, Meerut, Moradabad, Rai Bareilly, Saharanpur, Unnao	Agra, Aligarh, Allahabad, Auraiya, Azamgarh, Badaun, Baghpat, Ballia, Bijnor, Chandauli, Chitrakoot, Deoria, Etawah, Fatehpur, Gautam Budh Nagar, Ghaziabad, Gonda, Hamirpur, Hathras, Jalaun, Jhansi, Kanpur Dehat, Kanpur Nagar, Lakhimpur Kheri, Lalitpur, Lucknow, Mahoba, Mathura, Meerut, Mirzapur, Pratapgarh, Saharanpur, Sitapur, Sultanpur, Unnao
Uttaranchal		Dehradun, Haridwar
West Bengal	Bankura, Bardhaman, Midnapur, N-24 Parganas, Purulia	Bankura, Bardhaman, Birbhum, Haora, Hugli, East Medinipur, Malda, Murshidabad, Puruliya, South-24 Parganas, West Medinipur
Dadra & Nagar Haveli		Dadra & Nagar Haveli
Pondicherry	Pondicherry	Pondicherry

<sup>81</sup> For 1981-2000 data includes Uttaranchal

Table 2

Net irrigated area by source

Source	1950-51		1995-96	
	Million Hectre	Share (per cent)	Million Hectre	Share (per cent)
Surface	14.9	71.3	23.7	44.3
Groundwater	6.0	28.7	29.8	55.7

Source: Adapted from Table 1.2, A Vaidyanathan, *India's Water Resources: Contemporary Issues on Irrigation* 10 (Delhi: Oxford University Press, 2006)

Table 3

Growth of Ground Water Irrigation

Type of Well		1951	1968	1994
Open wells	No (in Lakhs)	3.9	6.1	10.2
	Energised (in Lakhs)	Negligible	1.4	7.2
	Net Irrigated area (in Lakh hectres)	1.5	1.3	1.2
Tubewells	No (in Lakhs)	Negligible	0.4	5.1
	Energised (in Lakhs)	Negligible	0.4	5.1
	Net Irrigated area (in Lakh hectres)	Negligible	4.5	18.4

Source: Adapted from Table 1.3, A Vaidyanathan, *India's Water Resources: Contemporary Issues on Irrigation* 10 (Delhi: Oxford University Press, 2006)

Table 4

Position of Enactment of Legislation on Control and Development of Ground Water Resources in Various States

States/UTs	Title of Legislation, if any	Status of Implementation	Remarks, if any
<b>Andhra Pradesh</b>	Andhra Pradesh Water, Land and Trees Act, 2002	Enacted with effect from 18.04.2002	Covers the whole State
<b>Assam</b>	Model Bill to regulate and control the development of ground water has been framed by the State Government	Has been sent to Committee Members for comments	
<b>Bihar</b>		The State Government has set up a Committee to consider the matter and decision will be taken as per recommendations of the Committee.	
<b>Chandigarh</b>		There exists a law requiring permission for withdrawal of ground water in Capital Project Areas.	
<b>Daman &amp; Diu</b>	Ground Water (Control & Regulation) Act, 2002	Draft has been prepared and referred to the Ministry of Rural Development for concurrence	
<b>Goa</b>	Goa Ground Water Regulation Act, 2002	Enacted by the State Legislature on 25.01.2002.	
<b>Gujarat</b>	Bombay Irrigation (Gujarat Amendment) Act, 1976	Enacted legislation on 1987 by amending the act. In force since 1988. <sup>82</sup>	Applicable only to nine out of nineteen districts in the State.
<b>Haryana</b>		Various Draft Bills prepared by the State Government.	Drafts for regulation and control of ground water development as well as prevention of waste of ground water, including the one in 1996 has never been passed.
<b>Himachal Pradesh</b>		-do-	
<b>Jammu &amp; Kashmir</b>		The draft Bill is being examined by the State Government	

<sup>82</sup> Confusion prevails on the enactment. See, Dubash, note 25 above, at fn. 34.

<b>Karnataka</b>	The Karnataka Ground Water (Regulation and Control) Bill, 2002	Under consideration of the State Government	
	The Karnataka Ground Water (Regulation for Protection of Sources of Drinking Water) Act, 1999	Enacted	Covers drinking and domestic purpose
<b>Kerala</b>	Kerala Ground Water (Control and Regulation) Act, 2002	Enacted	
<b>Lakshadweep</b>	Lakshadweep Ground Water (Development & Control) Regulation, 2001	Enacted with effect from 01.11.2001	
<b>Madhya Pradesh</b>	Madhya Pradesh Peya Jal Parirakshan Adhiniyam, 1986		Protection of drinking water sources exists
<b>Maharashtra</b>	Maharashtra Ground Water (Control and Regulation of Development and Management) Bill, 2000	Sent for presidential assent	
	The Maharashtra Groundwater (Regulation for Drinking Water Purposes) Act, 1993	Enacted in 1993	
	Maharashtra Water Resources Regulatory Authority Act, 2005		
<b>Mizoram</b>		Preparation of Draft Bill for regulating ground water with reference to Model Bill for the State is under process in PHED	
<b>Nagaland</b>		State Government views that at this stage it may not be necessary to enact any law	
<b>NCT of Delhi</b>		The State Government proposes to amend the Delhi Water Board Act to accommodate concerns expressed in the Model Bill, draft of which has since been prepared and at consultation stage	
<b>Orissa</b>		The matter is under consideration of Government of Orissa	
<b>Pondicherry</b>	Pondicherry Ground Water (Control & Regulation) Bill, 2002	Passed by the State Legislature and referred to the	

		Ministry of Home Affairs for Presidential assent	
<b>Punjab</b>	Draft on "Punjab Ground Water (Control and Regulation) Act, 1998"	Draft sent to CGWA for comments	
<b>Rajasthan</b>	Rajasthan Ground Water (Regulation) Bill, 1997	Under consideration of the State Government	
<b>Sikkim</b>		State Government views that enactment of legislation to control the extraction of ground water is not necessary in the State	
<b>Tamil Nadu</b>	Chennai Metropolitan Area Ground Water (Regulation) Act, 1987	Enacted in 1987	Regulates ground water development in Chennai and some of the nearby revenue villages
	Tamil Nadu Ground Water (Development & Management) Bill, 2002		
<b>Tripura</b>		State Government feels it is not necessary to make legislation to regulated ground water development in the State at this stage.	
<b>Uttar Pradesh</b>	Draft Bill on U.P. Ground Water (Control and Regulation Act), 1997	Draft circulated to Members of State Water Council for suggestion and modifications	
<b>West Bengal</b>	West Bengal Water Resources Conservation, Protection and Development (Management, Control and Regulation) Bill, 2000	Has received Presidential assent, with some changes proposed that are to be incorporated in the Bill.	
	The West Bengal Ground Water Resources (Management, Control and Regulation) Act, 2005	Enacted in 2005	

Note 1: For the following states adequate information is unavailable: Arunachal Pradesh, Chhattisgarh, Jharkhand, Manipur, Meghalaya, Uttaranchal, Andaman & Nicobar, Dadar & Nagar Haveli.

Note 2: There exists other laws related to water, mainly pertaining to irrigation, which may have indirect connection to regulation and control of ground water extraction.

Source: Annexure II (for position as on 12.03.2003) in Department of Drinking Water Supply, Ministry of Rural Development, 'Fourteenth Report of Standing Committee on Rural Development, Fourteenth Lok Sabha, Demand for Grants (2005-06)' 88 (New Delhi; Lok Sabha Secretariat, 2005); P Ishwara Bhatt, 'A Comparative Study of Ground Water Law and Policy in South India', 1 *Indian Juridical Review* 25 (2004); World Bank, 'India Water Resources Management Sector Review: Groundwater Regulation and Management Report', 21 (Washington DC; World Bank, 1998); IELRC, 'Selected Legal Instruments related to Water', <<http://www.ielrc.org/water/doc2.htm>>

Table 5

Salient Features of Ground Water legislations

	Coverage	Restriction Type	Nature of Restriction	Remarks
The Karnataka Ground Water (Regulation for Protection of Sources of Drinking Water) Act, 1999	Drinking and domestic use	Spacing of structures	Prohibits sinking of well, without permission, within a distance of five hundred metres from the public source of drinking water, through which government or local authority supplies water to the public	Excludes any other use, and thus quite restrictive in application.
The Kerala Ground Water (Control and Regulation) Act, 2002	Drinking water	Spacing of structures	Prohibits digging of well, without permission, for any purpose within thirty metres from any drinking water source from where water is pumped for public purpose.	Permission to dig the well for the purpose of drinking water or agriculture is deemed to be granted if not communicated otherwise by the authority within stipulated period.
	Any purpose	Extraction Device used	Energised pump with capacity more than 1.5 HP for open wells, and 3 HP for tubewells, borewells and dug-cum-borewells, anywhere.	Reasonable exclusion of users with limited needs
The West Bengal Ground Water Resources (Management, Control and Regulation) Act, 2005	Any purpose	Extraction device used	Energised or mechanical pump, anywhere. Wells for public interest, as the State Government may deem fit excluded.	District level and Corporation level authorities can permit well with extraction capacity of upto 50 and 100 cubic metre per hour respectively. Otherwise, permission from State Level authority is required.
The Goa Ground Water Regulation Act, 2002	Any purpose	Spacing of structures	In non-scheduled areas, it prohibits sinking of well, without permission, for any purpose within one hundred metres from any public drinking water source or existing ground water source.	Additionally, for transportation of more than 30,000 litres of water annually from scheduled area, permission is to be taken.

<p>The Maharashtra Groundwater (Regulation for Drinking Water Purposes) Act, 1993</p>		<p>Spacing of structures</p>	<p>Prohibits digging of well, without permission, for any purpose within five hundred metres from any public drinking water source, applicable to all areas.</p>	<p>In water scarcity area, during scarcity period, extraction is regulated for any purpose other than drinking, where the source is located within one kilometer of a public drinking water source. The act quite clearly prioritises drinking water over all others purposes.</p>
<p>The Tamil Nadu Groundwater (Development and Management) Act, 2003</p>	<p>Any purpose</p>		<p>Permission, to be sought for digging of well, except for domestic purpose. Electricity connection for any source without license not to be granted.</p>	<p>In addition, transportation of ground water from notified area requires grant of permission.</p>
<p>Madras Metropolitan Area Ground Water (Regulation) Act, 1987</p>	<p>All purpose</p>		<p>Permission, to be sought for digging of well, except for domestic purpose. Applicable for wells where extraction takes place with the aid of pump set, or with the pump set of capacity not exceeding 0.5 HP in respect of any one well.</p>	<p>In addition, transportation of ground water from notified area requires grant of permission.</p>
<p>Andhra Pradesh Water, Land and Trees Act, 2002</p>	<p>Any purpose</p>		<p>Prohibits digging of well, without permission, for any purpose within two hundred and fifty metres from any public drinking water source, applicable to all areas, except any well for public drinking purpose and hand pump for private and public drinking purpose.</p>	<p>For prohibition of extraction, electricity authority may take steps as well.</p>

Source: Relevant Acts; Bhatt, at 33

## **Annexure-1**

### Basic features of the Model Bill, 2005:

- A. The State Authority, in consultation with appropriate bodies, can advise the State/UT to notify an area for control, regulate, use of ground water.
- B. In notified areas, permit is to be obtained by the new users for sinking of wells, save and except water extraction through hand-operated manual pump. This reflects the recognition of the change in groundwater harvesting technology in recent times, in contrast to the state of affairs one-hundred and fifty years ago. Existing users are also to apply for grant of certificate of registration along with following information:
  - i) Description of source of ground water
  - ii) Extraction device used
  - iii) Quantity of ground water withdrawal and hours of operation per day
  - iv) Total period of use each year
  - v) Purpose(s)
  - vi) Approximate population, in case the purpose is drinking water
  - vii) Location and extent of area irrigated, in case purpose is irrigation
  - viii) Details of service, pumping points, etc. for public authority run water supply scheme
- C. The authority can grant or refuse permission, in a time-bound manner, after considering the following factors:
  - i) Purpose or purposes
  - ii) Existence of other competitive users
  - iii) Availability
  - iv) Quantity to be drawn
  - v) Quality with reference to the use
  - vi) Spacing of ground water structures considering the use
  - vii) Long term ground water level behaviour
  - viii) Likelihood of adversely affecting any drinking water source in the vicinity
  - ix) Any other relevant factor
- D. In non-notified areas, new users are to register also.
- E. Users of ground water includes all entities, who will extract, use or sell the resource for any purpose including domestic use.