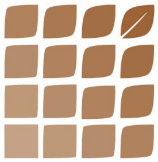

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GOVERNING GROUNDWATER

FOSTERING PARTICIPATORY AND AQUIFER-BASED REGULATION

Philippe Cullet

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I. Introduction

Groundwater use has become pervasive over the past fifty years. Its importance can be gauged first from the fact that it is the source of around 80 percent of drinking water needs (Government of India 2012). In addition, groundwater has also become the primary source of irrigation, accounting today for around 60 percent of agricultural use (Shankar et al. 2011; Mukherji et al. 2013). This extremely rapid increase in the reliance on groundwater for the most important water uses that support domestic needs and agricultural livelihoods in particular has led to over-exploitation in many parts of the country. It is therefore not surprising that 16 percent of assessed blocks are over-exploited and another 14 percent semi-critical or critical (CGWB 2016-2017). In addition, the quality of the available water is rapidly diminishing and many areas are, for instance, increasingly affected by fluoride (Brinda and Elango 2011). There are thus issues of quantity and quality that affect an increasing number of aquifers.

From a regulatory perspective, the increasing reliance on groundwater, its over-exploitation and diminishing quality confirm that priority should be given to protection and conservation measures and to uses that are socially equitable. At present, the existing regulatory framework is incapable of providing an effective framework for conservation of groundwater at aquifer level. Indeed, existing rules essentially focus on the right of access to groundwater at the level of individual plots. This essentially precludes the adoption of measures looking beyond restrictions to the rights of individual landowners to abstract water. The existing regulatory framework is also largely insensitive to the social dimensions of groundwater use. Existing rules give landowners essentially unrestricted control over groundwater. In a context where land ownership is skewed and where the poor essentially rely on groundwater for access to drinking water, the dichotomy between rules of access favouring owners of the land and reliance of the overwhelming majority of people on groundwater is an increasing source of concern and conflict. This is particularly problematic in a context where groundwater is the primary source of water for the realisation of the fundamental right to water.

The existing challenges concerning protection and use of groundwater are caused in part by the existing regulatory framework. While it is often assumed that the crises are caused by an absence of regulatory framework, this is an inappropriate basis for addressing the problems we face. In fact, aquifers depletion has been caused in part because the legal framework has for decades specifically permitted landowners to take as much groundwater as they see fit with hardly any restrictions or safeguards in place. This is essentially what has prevented effective regulatory action over the past few decades since governments have hesitated in taking measures that would likely be opposed by large landowners whose political support may be crucial at the time of elections.

What is needed at this juncture is thus new forms of regulation for groundwater, as officially acknowledged in the twelfth Five Year Plan.[1] This requires introducing measures allowing local management of what is a common heritage of the community. The seriousness of the crisis has led the Government of India to take several initiatives in the 2010s to provide a new model legal framework that states should be able to adapt to their needs and specific situation.[2] The latest proposal, the Model Groundwater (Sustainable Management) Act, 2017 provides a strong basis on which states can build a legal regime able to address the need to protect and use groundwater in a way that is socially equitable and environmentally sustainable.

II. Existing groundwater Regulation and Shortcomings

Access to groundwater has been regulated since the middle of the nineteenth century by rules that were set in judicial decisions adjudicating disputes related to the use of land for industrial activities or mining, rather than for drinking water or irrigation. Further, the context for the existing rules was that of England where the climate and water uses differ significantly from India.[3] The primary feature is that groundwater should not be subjected to the same rules as surface water,[4] on the (now discredited) understanding that the two were distinct. Consequently, judges refrained from applying the usual rules for access to surface water that significantly limited landowners' rights of appropriation. Judges decided on the basis of their understanding of hydrogeology that the most appropriate solution was to let landowners take as much water as they wanted, including at the expense of a neighbour whose own use of groundwater might be affected.[5]

The only exception that was made concerned groundwater deemed to flow in defined channels. In this case, the rules of limited appropriation in force for surface were to be applied and use was limited to domestic uses, cattle, irrigation and manufacturing activities.[6] This confirms that judges understood the rules for percolating groundwater as an exception to the usual rules that were much more restrictive in terms of what they allowed landowners to do. This should have been the starting point for a progressive evolution of rules concerning access to groundwater, particularly in view of science providing new insights on the movement of groundwater. This did not happen during the twentieth century and is yet to be fully taken up.

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[1] Planning Commission (n **Error! Bookmark not defined.**) para 1.115 states that '[n]ew model legislation is needed for protection, conservation, management and regulation of groundwater'.

[2] The first was the Planning Commission's Model Bill for the Conservation, Protection and Regulation of Groundwater, 2011.

[3] eg NS Soman, 'Legal Regime of Underground Water Resources' (2008) *Cochin University Law Review* 147.

[4] *Chasemore v Richards* [1859] 7 HLC 349, 374.

[5] *Acton v Blundell* [1843] 152 ER 1223, 1235.

[6] BB Katiyar, *Law of Easements and Licences* (13th ed, Universal Law Publishing 2010) 797.

A. ADDRESSING A MOUNTING CRISIS WITHOUT CHANGING THE RULES: THE 1970/2005 MODEL LEGISLATION

The crisis engendered by the rapid spread of mechanised pumps was noted by policy-makers early on. The spread of the green revolution that led to renewed emphasis on the need for irrigation led to a massive spurt – essentially unregulated – in drilling that resulted in rapidly declining water tables (Dhawan 1975).This led the Central Government to take up the need for regulating access to groundwater seriously and to adopt a model bill for adoption by states.

The Model Bill to Regulate and Control the Development and Management of Ground Water, 1970 was adopted to give states the means to intervene and restrict free access under certain conditions. This early initiative was not taken up by states before the end of the 1990s, apart from a few states that adopted groundwater legislation specifically focused on drinking water.[7] In the meantime, the Central Government revised the model legislation several times (1974, 1992, 1996), up to a last iteration adopted in 2005. These different revisions did not alter the basic character of the model legislation and as a result, the Model Bill to Regulate and Control the Development and Management of Ground Water can be seen as the framework proposed by the government from 1970 to 2005 (hereafter referred to as (Groundwater Model Bill 1970/2005).

The regulatory framework proposed by the Central Government in 1970 was one that was in keeping with mainstream views on governance at the time that gave overwhelming emphasis to a centralised authority. In the case of groundwater governed by states, this translated into proposals for a state-level groundwater authority. The main functions of this authority were to notify areas of concern where the government should take measures to control groundwater use by landowners. Decisions were to be taken at the level of the state government,[8] and this consequently failed to provide space for decision-making by panchayats or even any other form of participation of the public. In a context where groundwater is understood as the most local source of water, the legislative scheme was at odds with reality on the ground. Once an area was notified, anyone seeking to use groundwater had to apply for a permit, with the exception of groundwater use limited to manual extraction mechanisms, such as handpumps.[9]

In addition, under the Groundwater Model Bill 1970/2005 all extraction mechanisms needed to be registered, whether the area was notified or non-notified.[10] This information could be used by the state-level authority to determine whether to grant or deny permits. Such decisions were to be based on different elements, including groundwater availability, the amount of water that was to be extracted and the distance between extraction points.[11] One of the crucial elements in decision-making is the use to which the water is to be put. In this regard, the model

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[7] Madhya Pradesh peya jal parirakshan adhiniyam, 1986. Other states that have drinking water-specific groundwater legislation are: Karnataka Ground Water (Regulation for Protection of Sources of Drinking Water) Act, 1999 and Maharashtra Ground Water Regulation (Drinking Water Purposes) Act, 1993.

[8] Model Bill to Regulate and Control the Development and Management of Ground Water, 2005, s 5.

[9] ibid s 6.

[10] ibid s 8.

[11] ibid s 6(5).

legislation did not specify that drinking water was the first priority of use.[12] Yet, in a concession to the prioritisation scheme that would become pervasive in water policies adopted from the 1990s onwards, an exception to the permit requirement was made for hand-operated devices that were understood as having for primary function the fulfilment of drinking water needs.[13]

The states that have legislated on groundwater over the past two decades have generally followed relatively closely the template given by the Groundwater Model Bill 1970/2005.[14] Limited attempts to domesticate the model legislation to the needs of individual states can be identified but, on the whole, there has been no attempt to think beyond the proposed model. This is surprising in view of the diversity of situations faced by different states in the country. One of the points that has been addressed in several acts concerns the structure of the authority put in place. Different states have provided, for instance, their own distinct balance of official and non-official members.[15] Other differences include the scope of application of the act, with some applying to all groundwater and others only applying to areas that are notified.[16] The state that has gone furthest in adapting the model legislation is Andhra Pradesh that maintains the top-down regulatory structure but put the regulation of groundwater in a broader context of environmental protection.[17] In addition to the fact that state legislation fails on the whole to take the challenge of groundwater regulation beyond the model devised in 1970, there has also been limited implementation of the existing statutory provisions in most states.

B. CRITIQUE OF THE EXISTING REGULATORY FRAMEWORK

The regulatory framework as it stands is an inappropriate response to the challenges that the country face in terms of groundwater at the end of the 2010s. The rules put in place in the nineteenth century were never meant to address the complex situation that prevails today where groundwater is the main source of water for the main uses of water and the primary source for realising the fundamental right to water. An entirely new framework is called for to ensure that aquifer-based protection measures are put at the centre of a regulatory regime that is premised on ensuring equitable access to groundwater.

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12 ibid s 6(5)(a) only provides that the purpose has to be taken into account while s 6(5)(h), which is the only sub-section referring to drinking water, only considers it as an indirect factor.

13 ibid s 6(1).

14 These include Andhra Pradesh, Bihar, Goa, Himachal Pradesh, Karnataka, Kerala, Tamil Nadu and West Bengal. The following Union Territories have also adopted groundwater legislation: Chandigarh, Dadra and Nagar Haveli, Lakshadweep and Puducherry.

15 In Goa, the act simply authorizes the government to nominate members without specifying their origin. Goa Ground Water Regulation Act, 2002, s 3(2). In Kerala, only four of the thirteen members of the Authority are civil servants while the rest is made of a combination of people with different expertise. Kerala Ground Water (Control and Regulation) Act, 2002, s 3(3).

16 For the former, Kerala Ground Water (Control and Regulation) Act, 2002 and for the latter West Bengal Ground Water Resources (Management, Control and Regulation) Act, 2005.

17 Andhra Pradesh, Act to Promote Water Conservation, and Tree Cover and Regulate the Exploitation and Use of Ground and Surface Water for Protection and Conservation of Water Sources, Land and Environment and Matters, Connected Therewith or Incidental Thereto, 2002.

The first reason for reform is that rights of access to groundwater are delinked from the current scientific understanding of the connexions between surface and ground water that we now understanding as being unitary (Sophocleus 2002). Existing rules are still premised on the idea that ground and surface water are two unconnected bodies that can therefore have their own distinct rules.

In addition, existing rules were developed in a context where mechanical pumping techniques in widespread use today had not even been invented. They are thus unable to provide effective and appropriate answers to the type of situation that arises when a landowner extracts water at a much higher rate than their neighbours and in the process ends up depriving them of their own access to water. This may happen because different farmers in a locality have different capacity to drill and to pump and can happen in situations, like bottling plants located in an area where other landowners also extract water from the same aquifer. This can lead to formal conflicts, as in the case of the Plachimada bottling plant in Kerala (Bijoy 2006).

A second reason that explains the need for reform is that existing rules were never suitable for the country in which they have been implemented. The rules were developed for a country and at a time when judges or policy-makers had probably never thought about the issue of water scarcity, or at least not in the way in which it presents itself in a tropical country. While some parts of India may enjoy climatic conditions relatively similar to England where groundwater rules were developed, this is not the case for the vast majority of the country (Attri and Tyagi 2010). In addition, the rules in place were not developed in view of the complex pattern of water use that exists in India, in particular with regard to the overwhelming importance of the irrigation sector as the primary user of (ground)water.

Another issue arising from the existing regulatory framework is that it links land ownership with groundwater access. It therefore indirectly assumes that landowners are the only users of groundwater. This therefore disregards everyone else, a fiction that does not reflect today's reality of nearly every person having a stake in groundwater protection and use because it is their source of drinking water and maybe for other uses too. In a context where well ownership is skewed in favour of large landowners, seeing groundwater as a prerogative of landowners is problematic in terms of social welfare.

Finally, existing rules conceive groundwater as a substance to be regulated on a landholding basis rather than on an aquifer basis. The current regulatory framework is thus entirely incapable of addressing groundwater as a common heritage of the community that needs to be protected for the benefit of the environment and the community and used in a manner that benefits all members of the community. At present, there are not only virtually no restrictions on the amount of water each individual landowner can extract but also no mechanism that can force different landowners to collaborate to ensure protection of the aquifer. Rather, each individual landowner is indirectly encouraged to pump as much as they can, in the knowledge that their gains will not need to be shared while the pain will be shared by everyone sharing the aquifer. This is prejudicial to everyone and the environment and the only temporary winners are on the whole the bigger landowners that have the capacity to use and abuse the resource until it is exhausted.

III. Groundwater Regulation in a time of Increasing Scarcity: The Model Groundwater (Sustainable Management) Act, 2017

It is now widely accepted that the groundwater legal regime needs to change. Yet, introducing change has proved difficult in practice because it remains relatively easy to ignore the groundwater crisis due to its partly hidden nature and the fact that in the short term it may be politically more attractive to foster groundwater mining. At the same time, in various parts of the country, the crisis has reached a level where it cannot be ignored and new responses need to be given to ensure that the situation does not get worse in the future. Several states have thus started to take measures to address the crisis. Some states have taken limited regulatory action, such as in the case Punjab where legislation was passed reduce groundwater use by prohibiting the sowing and transplanting of paddy before specific dates.[18] This is despite the fact that Punjab has been generally opposed to introducing groundwater legislation and in response to a crisis caused directly by the additional groundwater irrigation facilities created in recent decades (Government of India 2012). In other cases, groundwater regulation has been appended to irrigation legislation, as was done in Gujarat. This includes the introduction of a water rate on percolating groundwater within 200 metres of canals, as well as a licensing system for irrigation-related tubewells. Beyond these examples, as mentioned above, some states have adopted a statute based on the Groundwater Model Bill 1970/2005.

The picture of groundwater regulation thus seems to be an evolving one and confirms that many states have responded to the serious groundwater crises they are facing. At the same time, while states are addressing the challenge, they are doing so in a limited manner. In particular, the focus of all the acts adopted is on top-down measures seeking to control use of groundwater by specific users. No beginning towards conceiving groundwater regulation from a protection perspective and from an aquifer-wide basis has been made. Yet, there is a need for a complete rethinking of the premise on which groundwater regulation is conceived. Firstly, it is imperative to ensure that groundwater regulation be more clearly focused on the different main dimensions of groundwater protection and use. This implies not only understanding the priority of use as being on drinking water, something that is already the case in practice, but also linking the need for access to safe water with the focus on protection of the aquifer. Secondly, regulation must start at aquifer level and both protection and use must be conceived at that level. This implies severing the link between access to groundwater and land in favour of an understanding of groundwater centred around its community dimensions, the fundamental right to water and livelihood-related uses.

Any new legal regime needs to be based on principles that reflect the needs of the sector and are in conformity with today's legal framework. This new set of principles is far from what we have today since groundwater rules have not evolved for decades while the rest of the legal framework has changed considerably. The Model Groundwater (Sustainable Management) Act, 2017 (Groundwater Model Act, 2017) offers a template for introducing these new principles and ensuring more socially equitable use and aquifer-level protection of groundwater.

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[18] Punjab Preservation of Subsoil Water Act 2009. Haryana adopted similar legislation, Haryana Preservation of Sub-Soil Water Act, 2009.

A. GROUNDWATER AS A COMMON HERITAGE: RECOGNITION AS A PUBLIC TRUST

In a context where the first stumbling block preventing the emergence of a more socially equitable and environmentally sustainable legal regime is the legal status of groundwater, the Groundwater Model Act, 2017 addresses this directly. The preamble starts by recognising that 'private property rights in groundwater are inappropriate given the emerging status, conflicts and dynamics of groundwater' and that 'groundwater in its natural state is a common pool resource'.[19] On this basis, the Model Act provides at section 9 that groundwater is 'the common heritage of the people held in public trust' and that '[i]n its natural state, groundwater is not amenable to ownership by the state, communities or persons'.

Section 9 is potentially a game changer since it forces all actors to recognise that the current groundwater crisis forces us to radically alter our perception of groundwater and start by recognising its shared nature. This recognition of groundwater as a shared substance is a logical consequence of earlier judicial decisions. Indeed, it is already more than two decades since the Supreme Court recognised surface water as falling under the public trust doctrine.[20] Subsequently, at least one case has applied the same to groundwater.[21]

The switch from exclusive control by landowners to an understanding of groundwater as a shared substance is extremely important in giving a signal to all groundwater users that no one can appropriate it to the detriment of others and that everyone has a duty to contribute to its protection for the present and future generations. In the present context, the public trustee is the state because this is the easiest anchoring point for courts in the different countries where it has been introduced or extended to water, starting with California in the 1980s.[22] Yet, this can only work if the state includes its different manifestations from the local to the central level, something that has not been effectively conceptualised until now. Further, this implies that the trustee must take its fiduciary duty very seriously to avoid any dilution of the trust or it being taken over by private interests. The first decision of the Supreme Court in 1996 was very clear in stating that no privatisation of the public trust can be condoned.[23] In subsequent decisions, the Court has restated this position and added an inter-generational dimension to the protection duties.[24]

The recognition of groundwater as falling under the public trust doctrine is a significant conceptual development after more than 150 years during which individual landowners were essentially left to pump as much as they wanted. This change can contribute to more equitable in access to groundwater but the sole introduction of public trust is not sufficient in itself to ensure positive outcomes. This must be linked to a set of principles that ensure its application

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19 Model Groundwater (Sustainable Management) Act, 2017, preamble.

20 *MC Mehta v Kamal Nath* (1997) 1 SCC 388 (Supreme Court of India, 1996).

21 *State of West Bengal v Kesoram Industries* (2004) 10 SCC 201 (Supreme Court of India, 2004).

22 National Audubon Society v Department of Water and Power of the City of Los Angeles 33 Cal 3d 419, 441 (Supreme Court of California, 1983).

23 *MC Mehta v Kamal Nath* (1997) 1 SCC 388 (Supreme Court of India, 1996) para 34.

24 *Fomento Resorts and Hotels Ltd v Minguel Martins* (2009) 3 SCC 571 (Supreme Court of India, 2009) paras 36, 40.

from the local to the state level and linked to a series of substantive principles, in particular concerning protection of the aquifer.

B. GROUNDWATER AS A LOCAL SOURCE OF WATER: SUBSIDIARITY AND DECENTRALISATION

Significant emphasis has been put since the 1990s on the need to strengthen governance at the local level. The two constitutional amendments of 1992 triggered a series of changes in state-level legislation through which panchayati raj institutions were allocated water-related competences, such as concerning drinking water and minor irrigation.[25] In urban areas, municipalities now have powers over water supply.[26] This confirms that decentralisation of water governance has been debated for years and is already in principle implemented. Yet, neither water law in general nor groundwater law specifically provides for regulatory control by the local bodies of governance. At present, the bases for regulation of groundwater on the basis of subsidiarity and decentralisation exist but they need to be integrated in groundwater-specific legislation to ensure that decentralisation progresses beyond devolution from the Union to the state level.[27]

The Groundwater Model Act, 2017 takes up the challenge of implementing the decentralisation mandate for groundwater. It starts by recognising that '[c]onservation, use and regulation of groundwater shall be based on the principle of subsidiarity'.[28] Essentially, this strengthens the decentralisation framework to add a bottom-up dimension to decentralisation and conceiving regulation starting at the local level.

This is taken up more specifically by organising decentralised governance around existing units of territorial governance.[29] Since these boundaries do not necessarily coincide with those of aquifers, the Model Act includes coordination mechanisms to ensure that where aquifer straddle more than one panchayat or more than one municipality, its protection and use can be organised through coordination measures at a higher level. This is indeed one of the functions of district groundwater councils that are tasked with coordinating the formulation of groundwater security plans where aquifer boundaries do not correspond with the boundaries of a single panchayat/municipality.[30]

The institutional framework of the Model Act is divided between urban and rural areas because this corresponds with the existing division between municipal law and panchayat laws. This includes the setting up of a Groundwater Sub-Committee as part of the Village Water and Sanitation Committee in rural areas and a Municipal Water Management Committee in urban

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25 Constitution of India, art 243G and Eleventh Schedule.

26 Constitution of India, art 243W and Twelfth Schedule.

27 eg Rahul Banerjee, 'What Ails Panchayati Raj?' (2013) 48/30 *Economic & Political Weekly* 173.

28 Model Groundwater (Sustainable Management) Act, 2017, s 6.

29 ibid, chapter 6.

30 ibid, s 17.

areas.[31] At higher levels, committees are set up to ensure coordination between lower-level committees and to address issues that can only be addressed at a higher level, in keeping with the subsidiarity principle.[32]

C. MAKING THE RIGHT TO WATER A REALITY THROUGH GROUNDWATER: OPPORTUNITIES AND CHALLENGES

A third element that has been the object of much attention in recent years is the recognition of the fundamental right to water. This has been repeatedly confirmed by high courts and the Supreme Court since the early 1990s.[33] At present, the right is firmly established in the legal framework but it only exists in terms of judicial decisions that limit themselves on the whole to establishing the broad contours of the right. This is not problematic in itself but the expectation would be that legislation takes this task ahead. This has not happened and there is in fact no legislation focusing specifically on drinking water, the core dimension of the right to water.

One of the dimensions that consequently remains under-regulated is water quality. Drinking water quality standards have existed for a number of years and provide effective reference points (BIS 2012). In addition, administrative directions of the government already provided a minimum standard for drinking water quantity in rural areas (40 litres per person per day) that would be the standard against which the right could be assessed.[34] These standards are very important but do not in themselves constitute a fully-fledged regulatory framework for realising the fundamental right to water. This is further reflected in the fact that in rural areas, administrative directions have become the regulatory framework that governs drinking water.[35]

The Groundwater Model Act, 2017 takes up this challenge directly and is the first instrument that seeks to statutorily specify the content of the right to water. It thus provides that '[e]very person has a right to sufficient quantity of safe water for life within easy reach of the household regardless of, among others, caste, creed, religion, community, class, gender, age, disability, economic status, land ownership and place of residence'.[36] It further gives for the first time quality standards statutory backing and specifies duties and safeguards concerning the provision of drinking water through groundwater.

D. CONSERVING GROUNDWATER: GROUNDWATER PROTECTION ZONES AND GROUNDWATER SECURITY PLANS

As noted above, one of the key missing dimensions of existing groundwater regulation is the absence of a conservation framework. This is not necessarily surprising since groundwater

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31 ibid ss 14(1) & 16(1).

32 ibid ss 15, 17 & 18.

33 *Subhash Kumar v State of Bihar* AIR 1991 SC 420 (Supreme Court of India, 1991) para 7.

34 Government of India, Accelerated Rural Water Supply Programme Guidelines.

35 eg Government of India, National Rural Drinking Water Programme, 2010.

36 Model Groundwater (Sustainable Management) Act, 2017, s 4.

rights were developed much before conservation and protection concerns arose. At the same time, the past four decades have seen the fast development of environmental law that does not find place in the existing regulatory framework for groundwater. Interestingly, water has been part of the scope of environmental law for decades, as reflected in the Water (Prevention and Control of Pollution) Act 1974 and the Environment (Protection) Act 1986 whose definition of environment includes water.[37] At this juncture, groundwater legislation needs to reflect and integrated principles of environmental protection. This includes principles enshrined in recent environmental legislation, in particular the precautionary principle, the polluter pays principle and sustainable development.[38] Such environmental principles are indispensable to build a new regulatory framework on strong protection bases.

In this context, one of the major advances brought by the Groundwater Model Act, 2017 is the inclusion of a protection regime based, for instance, on the precautionary principle.[39] The two key instruments for groundwater protection are groundwater protection zones and groundwater security plans. Groundwater protection zones will be zones of particular significance for conservation where 'appropriate measures regarding regulation on the extraction and use of groundwater, rules regarding afforestation and deforestation, land use changes including wetlands, prohibition of waste disposal, waste water recycling, quality standards for discharge of effluents, regulation of mining leases will be adopted and enforced'.[40]

Groundwater security plans are to be prepared for every watershed and administrative unit at the lowest possible level.[41] Their objectives include the attainment of sufficient quantity of safe water for life and sustainable livelihoods by every person; ensuring water security at all times and providing measures to preserve and improve the quality of groundwater.[42] The plans constitute one of the main novelties of the new legal regime and provide the building blocks for regulating groundwater at aquifer level on the basis of participatory decision-making.

Conclusion

India as a whole is increasingly reliant on groundwater. Yet, the regulatory framework governing groundwater has not been updated since the nineteenth century and is based on a mistaken understanding of hydrogeology. Further, there has been a qualitative shift in the importance of groundwater since the middle of the twentieth century that has turned it into the main source of water for all uses. The present legal regime that gives precedence to the individual interests of landowners is neither capable of providing the basis for the necessary aquifer-wide protection measures, nor suited to face the challenges of an increasingly complex sector.

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37 Environment (Protection) Act, 1986, s 2(a).

38 National Green Tribunal Act, 2010, s 20.

39 Model Groundwater (Sustainable Management) Act, 2017, s 7.

40 ibid s 13(5).

41 ibid s 11(3).

42 ibid s 11(2).

Groundwater is a shared common heritage and the legal framework needs to be based on the recognition that groundwater must not be regulated as a private resource. In a context where surface water has already been recognised as a public trust for two decades and where it is imperative to regulate surface and groundwater together, the first necessary step is to recognise groundwater as a public trust. This must be applied at all levels, starting at the panchayat/municipality level to ensure that the trustee is in close contact with the trust and can be held accountable for its actions.

The Groundwater Model Act, 2017 proposed by the Ministry of Water Resources, River Development & Ganga Rejuvenation takes up the challenge of proposing a new regulatory framework for groundwater based on the recognition of its nature as a common heritage that needs to be protected in an environmentally sustainably manner while being used in a socially equitable manner. The conceptual rationale for change is clear in the face of the mounting crisis of groundwater. At the same time, serious challenges remain on the way to adoption of this new framework by states that need to take a long-term view of the need for regulation and accept that groundwater is primarily a local source of water that needs to be preferably regulated, conserved and managed at the local level. In addition, in states that take a progressive view of groundwater regulation and adopt legislation based on this new framework, further challenges will arise at the implementation level. Indeed, local regulation and management is an ideal to aspire to but it requires a governance framework at the local level that functions well and has access to the necessary resources to deliver. The very different status of local governance in different states means that some states will find it much easier than others to implement the principles outlined in the Groundwater Model Act, 2017.

Challenges notwithstanding, a change of paradigm is unavoidable. From a short-term perspective, it may seem easier to avoid addressing the crisis. Yet, the more state governments wait to deal with the issue, the more difficult it will be to convince politically powerful landowners that a regulatory change is needed. The earlier we manage to convince all actors to take action, the better for aquifers and for long-term sustainability of access to groundwater for all.

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