Chapter 15
Karnataka

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Abstract A path-breaking shift from a strong tradition of rain-fed tanks and open wells to the mechanized groundwater extraction from the earth's bowels led to a series of water problems in Karnataka. Overdrawing and unreasonable groundwater extraction have resulted in adverse aberrations to aquifer health and have depleted the water quality rendering it inutile. Though traditionally groundwater is treated as a 'local' matter falling under the state list, its un-sustainable management has accentuated the national interest. Consequently, the Union Ministry of Water Resources has since the 1970s brought out Model Bills on groundwater regulations (periodically revised) to serve as a model template for the States to enact laws on groundwater. Karnataka enacted the Karnataka Ground Water (Regulation for Protection of Sources of Drinking Water) Act, 1999 and subsequently, the Karnataka Ground Water (Regulation and Control of Development and Management) Act, 2011. The chapter evaluates both legislations examining whether they provide an appropriate legal frame to attain the higher objective of sustainable groundwater utilization. It forwards an argument that while the scope of the 1999 Act is limited to safeguarding public drinking water, the focus of the 2011 Act is no better as it limits its scope to the operation of the permit system in notified areas. Accordingly, the authors propose an integrationist model represented by the Andra Pradesh water law, as a more appropriate model worthy of emulation by Karnataka.

Keywords Tank management · Drinking water · Water access · Untouchability · Mining

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1 Introduction

Groundwater is a highly critical natural resource and a primary source of water.[1] Since the 1970s, India has relied upon groundwater to increase its irrigation potential and provide water for drinking and other purposes. This reliance has led to far-reaching economic development in various parts of the country. Private entrepreneurship dominates groundwater development, and the financing bodies and power suppliers support it. However, groundwater availability for safe use depends primarily upon the extent of the annual recharge by rainfall and the extent and duration of water spread that feeds into the aquifer and its geological structure. Excessive groundwater extraction lowers the water table drastically. It leads to a host of geological problems like landslides, tremor, and groundwater quality deterioration by altering its chemical composition, which potentially ruins health and renders it unusable.[2] The water level can be enhanced by increasing the extent of recharge through rainwater harvesting by creating artificial storage mechanisms, construction of bunds and pits, afforestation, and artificial recharging. Since all these factors operate primarily at the local level, groundwater management is essentially a "local matter."[3] However, given its importance to the State and the country, groundwater management has implications beyond local confines. Such a proposition assumes significance due to the Supreme Court's decision in the Cauvery judgement. It was held that groundwater availability should be considered in calculating an inter-State river basin's water resources.[4] The judgement suggested the conjunctive use of surface and groundwater. Legal regulation of overdraft of groundwater, management of its use, avoidance of wastage, and prioritization of purpose becomes inevitable as unreasonable groundwater extraction is calamitous. Such regulation stands in contrast to the common law approach that the landowner has an absolute right to extract any amount of groundwater from his/her land even if such actions lead to the drying up of a neighbouring owner's groundwater resource. The latter legal position can obstruct prioritization of water for drinking over other uses, impact equitable access to water by other landowners in that locality, and efforts to maintain and sustain geological health.

Furthermore, this is an archaic legal position that evolved in an era where modern means of extracting groundwater by high-speed pumps and drilling technology were not prevalent. Moreover, it is inimical to equality, economic justice, and ecological protection. To balance development with distributive justice and establish intergeneration equity,[5] a general law with full-fledged policies for conservation, regulation, development, and appropriate enforcement mechanisms is required. Such a law should be flexible and should accommodate the topographical diversity and climate conditions of a State.

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[1] Vaidyanathan [6, pp 38–50].

[2] Ishwarabhat [1, pp. 139–153].

[3] *Groundwater Law* [12].

[4] State of Karnataka v. State of Tamil Nadu, (2018) 4 SCC 204–206 (India).

[5] Subhash Kumar v. State of Bihar, AIR 1991 SC 420 (India).

The legislative power regarding groundwater management falls with the States under the State List of the Constitution. The Central Groundwater Authority established by the Union Government under the Environment Protection Act, 1986, can regulate and control the management and development of groundwater in the country and issue necessary regulatory directions for this purpose.[6] The Ministry of Water Resources, Government of India, has formulated and circulated Model Groundwater Bills to the States since the 1970s. Karnataka has enacted two legislations: protecting drinking water supply systems and regulating and controlling groundwater development and management. These laws were enacted in 1999 and 2011, respectively. Further, there is a prohibition upon extracting groundwater in ayacut areas where the State provides canal irrigation. This paper aims to critically review these statutes after a brief literature survey and depiction of Karnataka's groundwater profile.

2 Historical Background

In assessing the present legal arrangement, the socio-economic and ecological practices prevalent for centuries, as a part of the cultural tradition, helps considerably. Tank irrigation gained significant importance and attracted the attention and support of royal dynasties, administration, people's village organizations in the form of panchayat and philanthropists. G. S. Dixit et al. refer to inscriptions and literary sources pointing out the construction of tanks, wells and bunds by rulers belonging to Satavahana, Kadamba, Rashtrakuta, Pallava, Chalukya, Hoysala, Ganga and Chola dynasties in the ancient period. The Vijayanagara, Maratha and Muslim rulers of the Bahmani kingdoms in the medieval period and the Mysore rulers, including Tipu Sultan in the modern period, paid attention to water management.[7] Local chieftains, members of the royal family, officers, philanthropists and village organizations made similar contributions. As a result, 45,000 tanks, big and small, came into existence by the end of nineteenth century in Karnataka. Economic incentives were provided to the persons constructing or maintaining tanks.

The Village headman, a Patel, enjoyed complete authority over the village and took care of the repair of tanks.[8] The maintenance of the tank was the responsibility of the builder who was the recipient of "*bittuvata*" (land granted for construction and maintenance of tanks), "*dasavanda*" (one tenth of land revenue granted for repair or building tanks), or "*kattukodige*" (grant of land for service rendered in connection with restoration or construction of tank) from the community. In his absence, another individual would undertake repair or restoration as an act of merit, for which he was granted fresh "*kattukodige*."

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[6] Central Groundwater Authority, P.N. No. 1/2012 (Notified on 2012); *see* M.C. Mehta v. Union of India, (1997) 1 SCC 312 (India).

[7] *See* Iyengar [2].

[8] Dikshit et al. [13].

Present water-scarce districts like Bijapur and Chitradurga never had water scarcity during the sixteenth and seventeenth centuries due to well-planned rainwater harvesting systems. The arrangements included rainwater harvesting, channelizing stormwater to other tanks and building large reservoirs outside the city, which supplied water using earthen pipes.[9] The income from fisheries, gardening of fruit-bearing trees, the contribution from users and temples supported the economy of tank irrigation. Thus, tanks became part of people's lives and cultures, a rich resource for lush green groves and standing crops. During the colonial period, State management of tanks replaced this system, which put an end to the practice of voluntarism. High water cess, inadequate spending on maintenance, no new tank constructions and alienation of people from tank management saw a sharp decline in tank irrigation during the colonial period. By 1901, there were 22,000 tanks with ayacut of 8.05 lakh acres and 7000 breached tanks in the princely State of Mysore. The position further deteriorated, and by 1951 the ayacut area reduced to 5.38 lakh acres. In 1956–57, this figure declined to 3.21 lakhs acres, and it further plummeted into 1.8 lakh acres in 2002–2003, although the registered command area is relatively high. This is alarming as the fall is about 43%.[10]

The contemporary developments during the last four decades have posed two serious anthropogenic problems: first, the large-scale introduction of technology of sinking borewells and extracting groundwater in massive quantities in the shortest time from whatever depth; and second, illegal encroachment of tank beds and conversion of unused tanks for commercial purposes and urban habitation. The first one is a technological development that has resulted in substituting tank irrigation or making the whole water management tradition irrelevant. The ease with which water is made available through borewells has made the people discard the traditional water storage methods. This leads to severe depletion of groundwater table and negatively impacts the aquifers' competence for rejuvenation. Further, tanks become dry due to groundwater over-extraction and are an open invitation for unscrupulous encroachment.

The second problem is more severe as it brings permanent change and makes it difficult to restore the original position. As per the study by Thippaiah, 6.69% of water spread area of forty-seven tanks was encroached by 290 persons. While 36,672 tanks are registered, 2595 tanks were abandoned. The reasons attributed to encroachment are the shift in management (from people to government), lack of coordination between village community and irrigation department, the indiscriminate sinking of borewells, the non-filling of tanks, inadequate rain, governmental policy favouring regularization of irregularities inducing violation, and lack of de-silting. The consequences of encroachment include impediment to water facility, obstruction to de-silting, restoration process and social conflicts.

[9] *Id*. at 271.

[10] Thippaiah [3].

3 Karnataka's Groundwater Profile

Karnataka has four physiographical regions: the narrow coastal plain along the west coast stretching over 300 km (hereafter km) with a maximum width of forty km (elevation of zero to 200 m above mean sea level; hereafter m msl); the Malnad region with steep western ghats mountain ranges eastwards to the coastal plain with a width varying between fifty to 100 km (elevation of 200–300 m msl); the Northern part comprising a table-land (elevation of 300–350 m msl); and the Eastern districts towards south from the plateau with a rolling topography of sporadic hills (elevation of 600–1000 m msl).[11] Agro-climatic distribution is such that coastal area constitutes 6%, hilly area 13%, transitional area 18%, and dry area 63%.[12] The river systems that drain Karnataka include the east-flowing Krishna, the Cauvery and the Godavari and the west-flowing Kalinadi, Sharavati, Netravati, Sita, and Swarna and their innumerable major and minor tributaries. Geologically, except the area of alluvium in the coastal belt and along the stream courses, the State is primarily littered with crystalline rocks and consolidated sedimentary. These do not possess primary porosity that can help water percolate easily to form aquifers.[13] The total rainfall in the year 2016 varied from about 112 mm (hereafter mm) (at Kollegal of Chamarajnagar district) to over 4582 mm (Kumta of Uttarakannada district).[14] During the period between 2007 and 2017, in all the four seasons in almost all the districts (in 70% of wells) there has been a fall in the water levels of less than two metres.[15] Fall of more than 4 m is seen in small patches in almost all the districts. Chemical components noticed in excess in the water samples are: 20% of samples with high pH content; 3% with high electrical conductivity; 1% chloride; 20% nitrate; and 13% fluoride. The water level's decadal fall is alarming and shows the need to augment the recharge and control groundwater over-extraction substantially. The extent of diversity in climatic and topographical conditions defies a "one cap for all" solution. The fluctuating figure of rainfall shows the need to increase forest coverage and decrease deforestation. The maximum acceptable limit of fluoride content is 1.5 mg/l. In 2016–17, the fluoride content of more than 1.5 mg/l was found in fourteen districts.[16] Excessive fluoride content in drinking water leads to fluorosis, milder dental problems or serious crippling of the skeletal system.[17]

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[11] Central Groundwater Board [8].

[12] *Id*. at 4.

[13] UNDP Siwi Water Governance Facility, WGF Report 3 Stockholm, Water Governance Facility Groundwater Governance in India: Stumbling Blocks for Law and Compliance19 (2013).

[14] *Id*. at 12.

[15] *Id*. 30, 32, 36.

[16] Central Groundwater Board [10].

[17] UN News [4].

The other anthropogenic factors that affect groundwater are (1) farmers' preferences for borewell irrigation because of the less cumbersome method of sinking it, availability of bank loan and absence of legal restraints; (2) rapid urbanization resulting in increased pollution whose percolation into aquifer causes groundwater pollution; (3) industrialization resulting in chemical pollution threatening groundwater quality[18]; and (4) mining operations namely, blasting or drilling, mineral processing, pumping of mine pit water and solid waste disposal (mainly responsible for groundwater quality deterioration in Bellary).[19] It is against this background that the section below analyses the two enactments on groundwater.

4 The Karnataka Ground Water (Regulation for Protection of Sources of Drinking Water) Act, 1999

The Statement of Objects and Reasons refers to the Central Government's repeated persuasion calling upon states to enact groundwater laws to safeguard drinking water sources. The existing administrative order requiring inter-spacing of borewells by providing for a minimum distance of 250 m was to ensure power supply and financial support.[20] These measures were ineffective in securing sustainable groundwater development. To secure access to the fundamental human right to drinking water, the state governments and local authorities increasingly established public water supply systems in rural and urban areas. The need to protect them against private activities competing for groundwater extraction was considered essential and required legislative support.

The central policy of the Act is enshrined in sub-section one of section three. It states,

> No person shall without obtaining permission from the appropriate authority … sink any well[to] extract or draw water within five hundred metres of public source of drinking water; Provided that nothing in this sub-section shall apply to sinking of a well on behalf of the Government or a local authority for being used as a public drinking water source.

The appropriate authority,[21] on the advice of Technical Officer (geologist), and having regard to the interest of the general public, may grant or reject permission for sinking the well overcoming the prohibition. The grant of permission is subject to prescribed conditions. Section three has the effect of protecting public drinking water sources and avoiding the overcrowding of borewells, which can affect drinking water supply.

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[18] Karnataka State Pollution Control Board, Annual Report 2017- - 18,106 (2018).

[19] Kiranaraddi M. Hombal, Spatio Temporal Analysis of Environmental Impact of Iron-Ore Mining in Bellary (2016) (unpublished thesis, Karnataka University) (on file with the Department of Geography, Karnataka University Library system).

[20] Puttappa Honnappa Talawar v. Deputy Commissioner, AIR 1998 Kar 10 (India).

[21] The Karnataka Ground Water (Regulation for Protection of Sources of Drinking Water) Act, 1999, § 3(1).

In any year, if there is scanty rainfall, then on the technical officer's advice, the Appropriate Authority may notify any area as a water scarcity area for one year.[22] In such areas, water extraction within 500 m of public drinking water sources may be regulated.[23] This operates against existing users, again prioritizing the claim and protecting public sources of drinking water. Under section six, the Appropriate Authority, based on the advice of Technical Officer, can declare any area as an overexploited watershed. Law prohibits the sinking of wells in the watershed area unless there is permission from an Appropriate Authority who has to duly consider the public interest in protecting the drinking water source.[24] After duly complying with the procedure, the existing users in the overexploited watershed may be asked to abstain from drawing water from their wells during the summer months.[25] The appropriate Authority has the power to close any well in the overexploited watershed. There are provisions for appeal, for entry into private premises and action, the penalty for non-compliance, and the power to make rules.

This Act thus has a limited purpose of safeguarding the public drinking water supply system. It allows the sinking of wells in justified circumstances by balancing competing interests and following the prescribed procedure.

5 The Karnataka Ground Water (Regulation and Control of Development and Management) Act, 2011

The statement of objects and reasons[26] (SOR) refers to the model Bills circulated by the Ministry of Water Resources to regulate and control the development and management of groundwater. The SOR acknowledging the efforts of Karnataka Ground Water (Regulation for Protection of Sources of Drinking Water) Act, 199, in prioritizing drinking water and protection of drinking water resource emphasizes the necessity to bring general legislation to control in-discriminatory exploitation of groundwater, especially in the State's notified areas. For this purpose, the law constitutes the Karnataka Ground Water Authority (KGWA).[27] It specifies the minimum distance between borewells dug for irrigation and empowers the concerned authority to declare drought-hit areas. It envisages coordination between funding and power distribution agencies. It also provides for rainwater harvesting.

The 2011 Act responds to the diversity of groundwater profile in Karnataka and confines the operation of the regulatory regime through the "permit system" only to the notified areas. To effectuate this policy, it relies on the institution KGWA,

[22] *Id.* at § 4.

[23] *Id.* at § 5.

[24] *Id.* at § 7.

[25] *Id.* at § 8.

[26] The Karnataka Ground Water (Regulation and Control of Development and Management) Act, 2011.

[27] *Id.* at § 3–17.

which has vast powers and responsibilities, especially concerning the notified areas. It employs a KGWA-monitored registration system governing groundwater users and drilling agencies. The KGWA also deals with rainwater harvesting measures in recharge worthy areas that it identifies.

5.1 The Essential Policy Underlying the KGW Act 2011

Regulation of extraction and use of groundwater in the public interest is the principal policy underlying the Act. Vast regulatory powers are conferred on the KGWA. It can identify and declare any area as a notified area after due consultation and adhering to other procedures. The KGWA also operates the permit system for sinking any new well in the notified area. As well, it regulates the existing wells through the system of registration in the notified area. It can alter, amend or vary the permit terms; can cancel permits or registration; regulate the activities of drilling agencies; can exercise the power of entry, investigate, enforce the Act; and initiate criminal and other proceedings against defaulters. "Command and control" is the core feature of this regulatory scheme. However, the biggest shortcoming of this scheme and, more broadly, the Act is that the regulatory powers are confined only to notified areas, which, when translated into practice, extends only to a few talukas (thirty) in twelve districts out of a total of 237 talukas in thirty districts in the State.[28] Empirical research points out that the experience concerning this regulatory policy is not one of strict compliance.

There are detailed provisions in the Act concerning the establishment, composition, meeting procedures of the KGWA; funding; rulemaking power, provisions relating to offences, penalties, and prosecution. The discussion below will highlight some of these provisions and their underlying policies and thereby assess the legal measures' importance, weakness, and efficacy.

[28] *Supra* note 21 at § 2(1).

As notified by the Central Ground Water Board as on November 27, 2012, there were twenty-two talukas in eight districts which have serious problems of overexploitation of Groundwater; as per Karnataka Water Resources Department, 2015, there are thirty talukas in twelve districts; *see also List of Notified Areas*, CENTRAL GROUNDWATER BOARD, https://cgwb.gov.in/CGWA/List-Notified-Areas.html.

5.2 Notified Area: The Prerequisite for the Application of KGW Act, 2011

The concept of "Notified area" arises from sub-section two of section ten which states,

> If the authority, after consultations with various expert bodies is of the opinion that it is necessary or expedient in the public interest to regulate the extraction or the use or both of groundwater in any form in any area, it shall advise the Government to declare any such area to be a notified area …

Consultation with the Central Groundwater Board is crucial as it provides empirical research-based reports on the annual groundwater position in Karnataka. However, a perusal of the annual reports and the extent of the notified area makes it clear that the KGWA does not act entirely based on the Report. The inclination is to confine notified area only to those zones that are highly problematic and overexploited. The limitation on the economic process arising from a more extensive list, difficulties of extensive regulation, and lack of public opinion supporting bureaucratic and meticulous regulation could be possible reasons behind such a restrictive approach.

The notification is publicized in the Official Gazette, and the date of commencement is at least three months after the notification.[29] It should be published in at least one regional language newspaper having a wide readership in the area.[30] If groundwater availability has improved in the area, it can be de-notified.[31] The Authority shall also adopt measures to safeguard groundwater resources so that its exploitation does not exceed replenishment's natural rate.[32] The Government also has the responsibility to augment groundwater resources in the notified area based on the advice of the KGWA.

5.3 Permit System in the Notified Area

Sub-section one of section eleven states,

> Subject to the provisions of any law relating to protection of public sources of drinking water, any user of groundwater desiring to drill or dig a well in the notified area for any purpose either on personal or community basis shall apply to the authority for grant of permit for this purpose and shall not proceed with any activity connected with such drilling or digging unless [the authority has granted a permit].

Clearly, the KGW Act, 2011 supplements the KGWA 1999.

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[29] *Supra* note 26 at § 10 (3).

[30] *Id.* at § 10 (4).

[31] *Id.* at § 10 (5).

[32] *Id.* at § 10 (6).

The words "User of groundwater" are used in a generic sense. It includes any legal or natural entity, public or private, which withdraws, uses or sells groundwater for any purpose. "Well" is a structure constructed to search or extract groundwater by a person or persons for all purposes, including commercial. It includes "open well, borewell, dug cum borewell, tube well, filter point, collection well, infiltration gallery, recharge well, disposal well or any of their combinations or variations."[33] Due to the broad nature of both these definitions, the scope of the permit system is broad.

The application for a permit should state the purpose—industrial, commercial entertainment, agricultural and domestic use, etc.[34] If the Authority is satisfied that there is no detriment to public interest, then it may grant the permit subject to necessary conditions and restrictions. The conditions can include the construction of mandatory artificial recharge structures.[35]

In granting or refusing the permit, the KGWA shall consider the applicant's purpose, if it falls within the domestic, agriculture, industry, commercial, entertainment purpose or for the sale, own use or both. Other factors include avoidance of water-intensive crops in the notified area such as paddy, sugar cane; existence of other competitive users; availability and the quantity to be drawn; groundwater quality; spacing of groundwater structures; long term groundwater behaviour; its likelihood of adversely affecting any drinking water sources in its vicinity; and priority to water saving device users who adopt sprinkler and drip irrigation system.[36]

If a groundwater user in the notified area does not have a permit, this disentitles him/her to receive any subsidy, grant or loan to dig wells and to access power for groundwater extraction.[37] These are severe deterrent factors that can dissuade users from not complying. However, this rule's efficacy depends upon the vigilance exhibited by the authorities. Empirical findings do not show substantial compliance, and there are large-scale violations.[38]

5.4 Composition and Meetings of the KGWA

Under section three, the Government may establish the KGWA, which shall have corporate personality trappings with attendant rights and powers. It is the primary agency tasked with the duty to administer the legal policy on groundwater management.[39] It functions under the overall control and supervision of the Government.[40] Its

[33] *Id.* at § 2(q).
[34] *Id.* at § 11 (2).
[35] *Id.* at § 11 (3).
[36] *Id.* at § 11 (5).
[37] *Id.* at § 16.
[38] *Supra* note 13.
[39] *Supra* note 26 at § 3(1), (2).
[40] *Id.* at § 10(1).

composition is mainly bureaucratic except that the Government may nominate four representatives who are farmers and two members who have specialized knowledge or practical experience in matters relating to groundwater as non-official members.[41] The duration is for three years.[42]

The Authority (KGWA) shall ordinarily meet at least once in three months. The chairperson or any member chosen by other members in the absence of the chairperson presides over the meeting. Decisions are based on the majority, and in case of equal division, the chairperson has a casting vote. Seven members form the quorum. The KGWA is supported by administrative staff recruited by the Government according to the prescribed rules. The administrative expenses and salary are paid out of the fund of the Authority. There are detailed provisions in Chap. III regarding sources, use of funds, budget, account, audit and annual report.[43]

5.5 Powers of the KGWA

The KGWA has the following powers under section seventeen in addition to the ones already discussed:

(a) It can enter any property during reasonable times to investigate and take any measurements regarding land or water located on the surface or sub-surface; (b) inspect a well, the soil and excavated materials; (c) take specimens; (d) order the person drilling or digging a well to keep and preserve the specimens; (e) inspect and to take copies of relevant record or documents and to ask any question for relevant information; (f) serve notice requiring any groundwater user or agency to furnish information; (g) require groundwater users to instal water measuring devices; (h) seize any mechanical equipment or device utilized for illegal drilling or digging of well and to demolish the work if executed fully or partly; and (i) direct any groundwater user who does not comply with the Act and its rules to stop the extraction, disconnect power supply or confiscate any hydraulic work.

The list of powers is comprehensive and supports the execution of the "command and control" model. However, the UNDP studies and journalistic reports do not reveal successful implementation of the law. In a matter like groundwater conservation and avoidance of over-exploitation, active participation and full cooperation of the community are required if the Act's objectives have to be secured, which is not often the case.

[41] *Id.* at § 3(3).

[42] *Id.* at § 5.

[43] *Id.* at § 18–21.

5.6 Registration of the Existing Users

To ensure compliance in the notified area, existing users should register their wells. Registration application should be filed within 120 days from the date of notification. Delay can be condoned if sufficient cause is shown.[44] The application shall contain details such as the groundwater source description; its location; nature of the lifting device used; the quantity withdrawn and hours of operation per day and the total period of use in each year.[45]

On conclusion of an appropriate enquiry, if satisfied, the KGWA shall grant a registration certificate subject to prescribed conditions.[46] Some of the matters considered while granting or refusing registration include the purpose for which the groundwater is used, whether the applicants are growing water-intensive crops like paddy and sugarcane (if yes, an undertaking that they will change to light-duty crops should be obtained and incorporated into the certificate of registration), the existence of other competitive users, groundwater availability and the need for its conservation, the quantity to be drawn, groundwater quality with reference to use and spacing of structures.[47]

5.7 Power to Alter or Cancel the Permits and Registration Certificates

After giving an opportunity to the groundwater user, and for technical reasons, the KGWA may alter, amend or vary the terms of the permit or registration certificate. However, standing crops should not be affected.[48] In case the permit or registration certificate is obtained by fraud or misrepresentation, or the holder has failed to comply with the conditions without justification, or a situation has arisen warranting limits on groundwater extraction, the Authority may cancel the permit or registration.[49]

5.8 Control Over Drilling Agencies

As per clause (e) of section two "Drilling Agency" means "a person or an agency or an organization or an institution engaged in drilling or digging wells for exploration or extraction of water." Since it is illegal to run the business of digging or extracting

[44] *Id.* at § 12(1).
[45] *Id.* at § 12(2).
[46] *Id.* at § 12(3), (4).
[47] *Id.* at § 12 (5).
[48] *Id.* at § 14.
[49] *Id.* at § 15.

groundwater without obtaining a certificate of registration from the KGWA, those in this business should register their machinery with the KGWA. Granting registration entails applying with adequate details and the KGWA's satisfaction that the applicant possesses appropriate skill and knowledge.[50] Rejection of application for registration on account of irrelevant consideration like cancellation of the contract between the borewell agency and the KGWA is arbitrary and remediable through a writ of certiorari.[51]

The KGWA has the power to order the person drilling or digging a well to preserve soil specimen or other excavated material.[52] It may obtain any information including, the diametre or depth of the well, level at which the water was obtained, types of strata encountered while drilling or digging, and quality of the water.[53] The drilling agency should at regular intervals provide all information sought by the KGWA.[54]

5.9 Rainwater Harvesting

Given the geological profile and plummeting groundwater levels in Karnataka, rainwater harvesting is essential. It must be assiduously and consistently practised. Rainwater harvesting emerges as a long-time sustainable measure that can be implemented in almost all parts of Karnataka, except in areas prone to landslides. "Rainwater harvesting" is the technique of collecting and using water at the surface or subsurface aquifer. In contrast, "artificial recharge of groundwater" is the process by which groundwater reservoir is augmented at a rate that exceeds natural conditions of replenishment. There is only one section devoted to this objective in the law, which depends on the KGWA identifying "recharge worthy" areas. The relevant subsection one of section twenty-two reads, "[t]o improve the groundwater situation, the Authority shall identify the recharge worthy areas in the State. The Authority in rural areas shall encourage through community participation the watershed management to facilitate groundwater recharge." There is no definition or criteria regarding the identification of "recharge worthy" areas. Considering the purpose of the legislation, the most extensive scope must be attributed. A pan-Karnataka approach is required rather than focusing only on distress areas.

Again, according to sub-section two of section twenty-two, "[t]he Authority shall give appropriate directions to the concerned departments of the Government to include rainwater harvesting in all developmental schemes falling under notified areas." Clearly, the focus is on notified areas, which is again limited in terms of coverage. There is no reason why such a measure should not apply to other parts of the State. There are useful lessons from the Andhra Pradesh model that integrates

[50] *Id.* at § 13.

[51] Shweta Borewells v. State Government of Karnataka, MANU/KA/2670/2014 (India).

[52] *Supra* note 26 at § 17(d).

[53] *Id.* at § 17(e).

[54] *Id.* at § 17(f).

rainwater harvesting with water, forest, and soil management (jal, jungle, jameen). The concerted efforts of departments for soil conservation, agriculture, forestry, and minor irrigation can help build a healthy groundwater ecology.

Rainwater harvesting in urban areas requires strict compliance and enthusiastic participation by the concerned stakeholders. According to sub-section three of section twenty-two, "In urban areas, falling in notified areas, the Authority shall issue directives for constructing appropriate rainwater harvesting structures in all residential, commercial and other premises having an area of 100 m^2 or more in manner prescribed within the stipulated period." Categorically, the focus again is on such measures in the notified areas. Sub-section four of section twenty-two states,

> Notwithstanding anything contained in the relevant laws, the Municipal Corporation or any other local Authority as the case may be, may impose stipulated conditions for providing roof top rain water harvesting structures in the building plan in an area of 100 square metres or more, while according approval for construction, and permanent water and electricity connections shall be extended only after compliance of the directions given in this regard.

Even though there is nothing to suggest that this clause applies only to notified areas except that it is put right after clause three. It is debatable whether one should apply the "*noscitur soci*" rule or the "*expression unius est exclusion alterius.*"[55] The common factor in both is the building area of 100 m^2 and the requirement of rooftop rainwater harvesting. Looking at the purpose behind rainwater harvesting and the Act's overall objective, the omission of the words "notified area" should be understood as not confining the requirement to "notified area" only.

Sub-section five of section twenty-two mandates the Authority to take steps to promote mass awareness and training programmes on rainwater harvesting and artificial recharge of groundwater through Government Agencies, Non-Government Organizations (NGOs), Voluntary Organizations, educational institutions, industries and individuals. This policy of linking law and people through NGOs is commendable and should be implemented throughout the State. Sub-section six of section twenty-two highlights the importance of incentives as a method for enforcement. It states, "The Authority shall take steps to extend incentives/subsidies to the farmers who are following water conservation and rainwater harvesting/recharge schemes."

5.10 Offences, Penalties, and Enforcement Methods

The "Command and control" method employs a punitive dimension to sternly deal with persons who obstruct the law's implementation or fails to perform legally mandated duties.[56] It is an offence to obstruct the Authority or any other persons authorized by it to exercise any power under the Act. Similarly, it is an offence to refuse or neglect or furnish false information wilfully. Drilling without a permit from the Authority is also an offence. Punishments, both fines and imprisonment, have

[55] JUSTICE Singh [7, pp. 98–560] (14d ed. 2016).

[56] *Supra* note 26 at § 23–41.

been prescribed. However, the length of the sentences and the quantum of fines is hardly a deterrent.

A necessary provision in this regard is that it empowers the public to give information regarding contraventions. The information given by groundwater users is confidential. The prior sanction of the Authority is required to initiate court's cognizance (not inferior to the Metropolitan Magistrate). Compounding of offences is permissible. In the case of companies' offences, persons in charge or who are responsible to the company can be held liable. Fines recovered under the Act are credited to the fund of the Authority. The jurisdiction of Civil Courts is barred. Compensation cannot be claimed for the acts done or actions taken under the Act in good faith.

6 Empirical Comments

The practical aspects relating to the implementation of the two enactments have come to the fore with time. Comparatively, the 1999 Act, because of its focus on prioritization of drinking water, has more significant governmental support, active involvement of the local bodies, and broader acceptance by the community. Further, the Act is less technical and has invited fewer complaints.[57] In contrast, the Act of 2011 has had to face severe issues. A survey points out that out of 697 rig owners, only 307 have registered in the Bruhat Bengaluru Mahanagara Palike (hereafter BBMP) area. Nearly 145 unregistered rig owners were penalized and rupees 7.5 lakh were collected as fines.[58] The expert survey estimated the number of private borewell owners in the BBMP area as four to five lakhs, whereas less than one lakh registered.[59] The Water Governance Facility finds fault in the very design and policy underlying the 2011 Act as it is overly bureaucratic.[60] Furthermore, the failure of awareness-raising campaigns to communicate the law's wider objectives contributed to the law being flouted in both letter and spirit.[61]

7 Judicial Process, Groundwater Management and Human Rights

The judicial approach in reviewing the governmental policy, both administrative and legal, and conserving groundwater resource must be assessed as the outcome of the government's regulatory action. It depends upon the judicial stance based on constitutional principles and values whenever any regulatory action is challenged.

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[57] Madhusudhan [5].

[58] Ashwini [9].

[59] *Id.*; *see also supra* note 13, at 20.

[60] *Supra* note 13, at 21.

[61] *Id.*

Further, the concept of equal rights of all in access to the drinking water needs to be discussed in relation to an atmosphere infested by caste discrimination. A brief discussion with a focus on Karnataka experience is ventured here.

Before the commencement of both the enactments, a regulatory measure by an administrative direction insisting on inter-spacing of borewells if power was to be obtained to run a newly sunk bore was challenged before the Karnataka High Court in *Puttappa Honnappa Talawar* as violating the right to life which included the right to drinking water.[62] The Karnataka High Court held that such administrative regulation without legislative support violated the right under Article twenty-one. Although the Court did not facilitate groundwater protection, it necessitated the expedient enactment of groundwater law in Karnataka.

After the 1999 Act's enactment and commencement, an issue regarding its application came before the Karnataka High Court. In *K. M. Hiriyannappa* v. *State of Karnataka*,[63] the Karnataka High Court held that denial of permission to a landowner by the Deputy Commissioner to sink a borewell in his/her land within 500 m of a public source of drinking water was valid in law. Justice L Narayanaswamy for the Court referred to the constitutional development of the right to drinking water as an aspect of the right to life,[64] and the State's responsibility under Article thirty-nine to arrange for distribution of resources to sub-serve the common good.

In *State of Karnataka v. State of Tamil Nadu*,[65] a question arose before the Supreme Court whether the quantum of groundwater available in an inter-state river basin should be taken into account in determining the shares of states in the waters of the inter-state Cauvery. This question was answered negatively by the Cauvery Inter-State Water Disputes Tribunal on account of uncertainty and lack of means for assessment. Overruling this proposition, the Court held that the groundwater availability should be considered as the quantum of groundwater is determinable.

Regarding the care to be adopted while mining so that groundwater and forest cover will not be depleted, the Supreme Court in *Samaj Parivartan Samudaya case*[66] ordered the suspension of mining in three districts in Karnataka until adequate measures were adopted for protecting water resources.

Sub-clause (b) of clause two of Article fifteen of the Constitution protects every citizen from any discrimination based on race, religion, caste, and sex regarding the use of wells, tanks, bathing ghats, wholly or partly maintained out of state funds or dedicated to public use. Article seventeen abolishes the practice of untouchability in any form under and penalizes the same under the Protection of Civil Rights Act, 1955.[67] This law condemns any act that denies water access to the untouchables.

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[62] Puttappa Honnappa Talawar v. Deputy Commissioner, Dharwad, AIR 1998 Kar 10 (India).

[63] K M Hiriyannappa v. State of Karnataka, W.P. 15,080 of 2007 (India).

[64] SubhashKumar v. State of Bihar, AIR 1991 SC 420(India); Venkatagiriyappa v. Karnataka Electricity Board, (1999) 4 Kar LJ 482 (DB) (India).

[65] State of Karnataka v. State of Tamil Nadu AIR 2018 SC 626 (India).

[66] Samaj Parivartan Samudaya v. State of Karnataka, MANU/SC/0397/2013 (India).

[67] The Protection of Civil Rights Act, 1955.

In *Appa Balu Ingale*'s case,[68] the Harijans were excluded by upper castes from accessing a borewell sunk by the government near a Harijan colony in Belagavi town in Karnataka. The Court set aside the accused's acquittal after elaborating caste-based discriminations that impinge human dignity. The case points out the need to expand the human right to water, cutting across castes or other discriminations.

The spray of Endosulfan on the cashew plantation in Karnataka and Kerala has resulted in serious pollution of open wells and groundwater sources. The Supreme Court, considering this writ petition,[69] prohibited such spraying and ordered compensation to the victims.[70]

8 Conclusion

Compared to the centuries-old tradition of eco-friendly tank systems, groundwater's unregulated extraction is an anomaly spurred by modern economic development. Given the laudable constitutional objectives that emphasize human rights, equitable access, and sustainable development in the sphere of natural resources like groundwater, the current legal framework for regulating and managing groundwater in Karnataka is inadequate. The legal development has only responded to overly exploited areas as its operation is confined to notified areas. These notified areas constitute only 10% of Karnataka's total geographical area, that too, it has little effect in practice. The other areas where exploitation of groundwater is more than 70% are left unregulated and is fast unfolding a calamity. The idea of disaster prevention has no place in such an approach. The inherent limitation of provisions on rainwater harvesting and lack of groundwater literacy have blocked conservation efforts. Without linking groundwater regulation to soil conservation, the revival of tank system and afforestation, the law remains incomprehensive. Over-reliance on the "command and control" model, non-involvement of local self-governing bodies, non-inclusion of human rights and economic justice approaches, and failure in partnering with civil society bodies and NGOs are other weaknesses. An overhauling of this law to set right the defects in its design is long overdue. In this regard, the Andhra model provides a useful template worthy of emulation.

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[68] State of Karnataka v. AppaBaluIngale, MANU/SC/0151/1993; *see also* Dr. Babasaheb Ambedkar: Writings and Speeches Volume 17 (Part–1) 6 (2014).

[69] Democratic Youth Federation of India v. Union of India, W.P. (C) 213 of 2011 (India).

[70] *Id.*; *see also* Remya P v. Abraham, AIR 2019 SC 426 (India).

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