British Journal of Arts and Humanities, 6(3), 138-145, 2024

Publisher homepage: www.universepg.com, ISSN: 2663-7782 (Online) & 2663-7774 (Print)

https://doi.org/10.34104/bjah.02401380145

British Journal of Arts and Humanities

Journal homepage: www.universepg.com/journal/bjah

Compliance of Legal Restrictions in Potable Water Abstraction in Rajshahi WASA Area: An Overview

Md. Arifuzzaman[1]* and Shariful Islam[1]

[1]Department of Law, Green University of Bangladesh, Dhaka, Bangladesh.

*Correspondence: arif@law.green.edu.bd (Dr. Md. Arifuzzaman, Assistant Professor & Chairperson, Department of Law, Green University of Bangladesh, Dhaka, Bangladesh).

ABSTRACT

The ground water level in Barind area Rajshahi rise and falls continuously with the advance of wet and dry season. A growing population, urbanization, increasing pressure on land and water resources by different competing usage and degradation of scarce resources challenge the extraction, management and protection of the water resources of Rajshahi as well as all over the Bangladesh. Agriculture is the major water using sector for ground water irrigation with rice cultivation, the single most important activity in the economy. Industry is also liable for large scale water withdrawal. Due to water level depletion 'deep tube well' especially submersible pump is randomly used in many of the houses in Rajshahi WASA area. Apart from agriculture, presently uncontrolled water abstraction for domestic or household purposes causes serious threats to sustainable ground water management. Due to this excessive stress upon the ground water resource, the yield capacity is being reduced and the need to conserve them is now generally recognized. Some of the legislations have clear guidelines and restrictions on personal source of ground water abstractions. National water policy, 1999 stressed the need for the protection of surface water and groundwater resources. WASA Act, 1996; Water Act, 2013; Local Govt. Act 2009 is the major instruments in this respect. This study has been an attempt to review the relevant laws regarding restrictions on domestic water abstraction and to examine through field survey the real scenario how far these are being complied with.

Keywords: Water, Abstractions, Deep tube well, Bangladesh, Legal restrictions, Potable water, and Laws.

INTRODUCTION:

Quite possibly one of the most limited resources in Bangladesh is water. Significant difficulties confronting sustainable water resources management include: unlimited extractions, developing urban interest, environmental change, land-use changes and natural necessities (Qureshi *et al.,*). Expanded groundwater accessibility resulting from the development of 'deep tube wells'[1]and shallow tube wells aided Bangladesh achieve proximate self-sufficiency in rice, with national output increasing over 15 million tons in the last two decades. Existing substantiation put forward that the policy concentrate so far has been largely on "resource development", and not on "resource management". The large-scale development of groundwater in Bangladesh over the last three decades has been driven by increasing population, the pressure to grow more food, risk-aversion, the Government's national policy of making boro rice a priority both in terms of food security to assure food supply in the face of potential disasters (e.g., floods, cyclones). This has brought about serious problems, most remarkably

extreme drawdown in intensively irrigated areas, and the worsening of groundwater quality (Kausher, A.H.M., 2017). The ground water level in the large parts of Rajshahi, Pabna and Kushtia regions in spring and summer go down, as the water is sucked up by tube wells for irrigation and domestic purposes (Islam, M.A., 2017). In WASA area, no one is allowed to set up any personal means of water withdrawal without the permission of WASA authority.[2]Now a days increasing use of Submersible pumps for domestic water withdrawal owing to water table depletion are also threatening the sustainability of Bangladesh's groundwater.

The objective of the study is to review the existing laws relating to water abstractions using deep tube well in Rajshahi WASA area and to assess the implementation status of the relevant laws. This work is based on both primary and secondary data. Water resources management is a cross-sectorial issue. Different institutions and organizations are involved with this management process. Various aspects are required to be taken into consideration to formulate water regulations. Due to this, the concept of Integrated Water Resources Management (IWRM) is adopted in the water laws of Bangladesh. IWRM is defined as the coordinated development and management of water, land, and related resources in order to maximize economic and social welfare without compromising the sustainability of vital environmental systems (GWP, 2000). Water Resources Planning Organization (WARPO)

In this study mere provisions of domestic water abstractions are discussed. All other aspects of water resources management have been consciously excluded to keep the work limited. Discussion on Ground Water Management Act, 2018 has also been avoided in this study as this Act was enacted for groundwater management focusing on irrigation. Transboundary water allocation issues are also avoided in this work. Rajshahi WASA area as a study area and respondents from the study area have been selected. Since water related laws are applicable to whole Bangladesh, thus it can be presumed that its application will be similar all over the country.

Investigation of the Domestic Water Abstraction System in Rajshahi WASA Area

Domestic water use includes drinking, cooking, bathing and washing needs. This is the most prioritized sector of freshwater demand since it meets the basic need for our metabolic requirements (Arifuzzaman M. *et al.,* 2019). Besides, water is in demand for different types of household chores, together with the needs of the domestic animals and kitchen garden. The real problem in use of freshwater in the domestic sector is reflected in the lack of access to safe water and sanitation in the country. As elsewhere in the developing world, the situation in urban areas of Bangladesh is more critical, where the population is growing at an annual rate of five to six percent (Rasheed, K.B.S., 2011; Shovon *et al.,* 2022).

Plate 1: Effect of ground water table depletion at hand tube well, Rajshahi city.

Rajshahi WASA (RWASA) was established in 2011. Total population of Rajshahi is 5,51,630. Salient features of water supply by RWASA are mentioned as follows.

Current situation of water supply in Rajshahi city by Rajshahi WASA[3]

General Information

Total population: 5,51,630 people
Water demand: 113290 cubic meters/day (113.29 MLD) (daily 11.33 core liters)
Water subscriber number: 44,894 Nos. (Jan-2020)
Number of manpower: 297 people
Annual maintenance and maintenance cost: 2760.57 lakh taka
Electric Bill: 1620.03 lakh taka
Cost of manpower: 368.48 lakh taka
Other Expenses: 772.05
Annual water bill (demand): 782.43 lakh taka
Yearly income: 507.42 lakh taka

Production and distribution

Total water production: 95000 cubic meters/day (95.00 MLD) (9.5 core liters daily)
Underground Water Production - 89.00 MLD (94%)
Surface Water Production - 6.00 MLD (6%)
Water supply pipeline line network: 712.50 km
Number of generating tube-wells: 103
Daily production of water: 205 (Liter per capita per day (**lpcd**)

Water service

Population covered by water supply: 4,63,370 people
The amount of sale of water: 61040 cubic meters/day (61.04 MLD) (6.10 core liters daily)

Service Guide

Total coverage of the water (population woes): 84%
Water availability (Duration of supply): 12 hours / day
Daily usage of water per day: 135.70 (Liter per capita per day (**lpcd**)
Sanitation coverage: 0%

Performance Guidelines

Non-Revenue Water (NRW): 33.78%
Operating ratio: 3.57
Water Tariff Recovery Rate: 64.85%
Manpower/1000 water connection: 7.08
Water production cost: 7.88 taka/1000 liter
Average water tariff: 4.18 taka/1000 liter

Above data shows that total coverage of the water (population wise) in RWASA area is 84%. Water coverage through underground water is 94% and water coverage through surface water is 6%. Now total 103 deep tube-wells are in operation (Arifuzzaman, MD., 2019). So dependency on ground water in case of water supply by Rajshahi WASA is notable here. Most of the city dwellers are dependent on their own source of water like, Deep-set shallow tube well, hand deep tube well, deep tubewell or submersible pump. Dependency on groundwater has been increasing for ensuring of supply of waters to the city dwellers causing unusual lowering of groundwater table for the last couple of years. Drastic reduction of wetlands in Rajshahi city has serious negative effect on ground water recharge. There were 4,223 ponds, canals and other wetlands in Rajshahi city in 1961. In the year of 1981, the number reduced to 2,271. In the year of 2002, the number of wetlands in Rajshahi city reduced to 729. The figure has come down to 393 only in 2018 (Source: RDA; RCC) (Arifuzzaman, MD., 2019). Due to indiscriminate earth dumping and unplanned urbanization. The ground water Rajshahi city has great negative effect of dry Padma River as Rajshahi is at the bank of Padma. Though the drastic reduction of water bodies is a matter of great concern, Rajshahi City Corporation (RCC) decides to conserve 22 natural ponds under its ownership in 2018, which the experts consider to be a very effective step.

Existing Laws on Domestic Water Abstraction in Bangladesh

Water Act 2013[4]

Water Act 2013 is based on the National Water Policy 1999, and designed for integrated development, management, extraction, distribution, usage, protection and conservation of water resources in Bangladesh. Water resources management is a multi-sectorial task. This challenging job of coordinating different Ministries, Institutions, Organizations and individuals are entrusted on Water Resources Planning Organization (WARPO) by the Water Act. Important provisions of the Act concerning study issues are as follows:

- The formation of the high-powered National Water Resources Council (henceforth termed as the Council) with the prime minister as the head. The committee is comprised of 34 members (including 12 Ministers, 13 Secretaries among others) to provide policy guidance to the implementation of National Water Policy, National

Water Resource Plan and the Bangladesh Water Act. Secretary, Ministry of Water Resources will act as Member-secretary.[5] An Executive Committee (EC) under the Ministry of Water Resources will implement the decisions taken by the Council. Minister, Ministry of Water Resources shall be the chairman of EC and Director General of WARPO shall be its member secretary.[6]

- A worthwhile initiative is the requirement for permits/licenses for large scale water withdrawal by individuals and organizations beyond domestic use.[7]
- Executive committee, on the basis of the result of the necessary inquiry, scrutiny or survey, may, by notification in official gazette, fix the lowest '*safe yield level*'[8] of any aquifer of any area.[9]

Water Rule 2018

This rule provides details guidelines regarding ground water abstraction for domestic use. Those are discussed below in short:

- For the purposes of section 19 of Water Act 2013, WARPO shall, on the basis of the results of proper investigation, test or survey, determine the minimum safe level of groundwater aquifer in different areas over time and will publish by notification in the Official Gazette with the approval of the Executive Committee.[10]
- No NOC shall be required in the case of water abstraction in the following manner or purpose,[11] namely:

(a) In case of extraction of drinking water and water for domestic work by hand tube well or Deep-set shallow tube well.

(b) In case of extraction of water for drinking and household work by hand operated deep tube wells. But in declared water stressed areas, in accordance with the order issued by WARPO, subject to certain conditions, no objection certificate shall have to be taken in the prescribed manner.

Besides, to extract water in force mode by installing deep tube well for any purpose from the ground water aquifer no objection certificate from WARPO is mandatory.[12]

Water Supply and Sewerage Authority Act, 1996

Water Supply and Sewerage Authority Act, 1996 was enacted to develop water supply and sanitation system and to deliver water supply, sewerage and storm water drainage services (Biswas, A.K., 2004). It provides for autonomous corporate management structures of WASAs which are answerable to their respective Boards of Directors representing a range of stakeholders (Ahmed K.M., 2000). Section 24 of the Act states that, no person can abstract, treat, pump, preserve or supply water or construct sewerage, pumping and treatment plant within the jurisdiction of the WASA without NOC.

Local Government Laws

Local Government (City Corporation) Act 2009[13]

Unlike Union and Pourasava, City Corporation has also been entrusted with some of the authority of managing water resources in the areas under its jurisdiction. According to article 8.5 of the 3rd schedule of the Act, no new well may be dug for drinking water, also no tube wells may be installed or any other source of water may be provided without the permission of the Corporation.

Compatibility of Water Act with WASA Act and Local Govt. Act

The Bangladesh Water Act (BWA) has established the right to access water. Access to drinking water and water for domestic usage being considered as basic rights. Section 3(2) of BWA states the *"...right to potable water, use of water for hygiene and sanitation will be considered shall be treated as a universal right*." Section 2(3) says that "..... the land owner will contain the right to use of surface water on private property and the owner will use this under the provision of this Act. Although there is no mention of issuance of licenses or permits in the Act, it is implicit that there will be requirement for the issuance of permits/licenses for large scale water withdrawal by individuals and organizations beyond domestic use (permit for small scale groundwater abstraction may not be feasible option). But the issue is different for WASA area according to WASA Act. WASA permission is required for any private water source (irrespective of large or small scale withdrawal) here. The same is true for the City Corporation area as per City Corporation Act 2009.But definite division of

responsibilities between the different authorities is not remarked in the laws. Hence coordination of WASA Act, 1996, Local Govt. Laws, 2009 and Water Act, 2013 is very urgent for effective functioning of the authorities like WASA, City Corporation and WARPO.

Implementation of Laws on Water Abstraction

To assess the implementation status of laws, total 30 respondents were interviewed. Among them, 20 individual house owners of Rajshahi WASA area were interviewed as water users under random sampling basis. Researcher received information from diverse stakeholders including domestic water users, local public representatives, water experts and water resources related officials. Apart from these, 10 water experts & officials were interviewed in order to obtain their opinions regarding the laws respecting domestic water extraction and their implementation. A set of questionnaire was formulated to conduct the interview. Descriptive statistics has been applied in assessing the collected qualitative data. Finally the findings and recommendations have been summarized on the basis of the study. These have been described and shown in tabular forms below.

Table 1: Water supply system of the respondents

Domestic water users	Central (Supplied by authority)	Local (Self arrangement)	Both	Total
Rajshahi WASA area	1 (5%)	3 (15%)	16 (80%)	20 (100%)

Table 1 states that 20 respondents of the RCC, Ward no 2. Rajshahi WASA areas have been interviewed of whom 1 person (5%) use central water (supplied by the authority) and 3 persons (15%) have a personal source of water for drinking and household purposes. Another 16 persons say they have both systems which is (80%).

Table 2: Kinds of personal source of water.

Domestic water users	Submersible pump (Deep tubewell)	Hand tube well/Deep hand tube well/Deep set shallow tube well	Total
Rajshahi WASA area	16 (84.21%)	3 (15.79%)	19 (100%)

Table 3: Permission/license in case of self-arrangement.

Respondents	Permission/license	No permission/license	Total
Water users	0 (0%)	19 (100%)	19 (100%)

Table 4: Cause of not taking permission/license.

Respondents	Having knowledge of laws but Intentional	No knowledge of laws	Total
Water users	0 (0%)	19 (100%)	19 (100%)

Table 5: Legal restrictions relating to private source of water for drinking purpose.

Respondents	Followed	Not followed	Total
Water experts and officials	0 (0%)	10 (100%)	10 (100%)

Table 2 explains that, 19 house owners who have personal source of water for drinking or household purposes were interviewed. Among these 19house owners, 16 respondents are using submersible pump (deep tube well) to abstract ground water which is 84.21%. The number of submersible pump user is significant. All of the 19 respondents inform that they have no permission/license for personal arrangement (**Table 3**). All of them notify that they did not take any permission/license due to lack of knowledge about

laws (**Table 4**). According to WASA Act 1996, no personal arrangement for water supply is allowed in the WASA area except NOC issued by WASA.[14] Moreover respondents who have submersible pump (deep tube well) are legally bound to take permission from WARPO under Water Act 2013 and Water Rules 2018.[15]Besides, as Rajshahi city is included in City Corporation, so Local Government (City Corporation) Laws 2009 also state about permission from the authority for self-water supply management in City Corporation area. **Table 5** shows that among 10 water experts and officials, all opine that laws are not being followed for private source of water for drinking purposes. So a huge gap between the law and its implementation is visible.

Rajshahi WASA authority in an interview with the authors says that it is the latest WASA in Bangladesh. Previously Rajshahi City Corporation (RCC) was entrusted with the task of water supply in Rajshahi City. In 2011 WASA separated from RCC. WASA has some infrastructural problem. It is trying to overcome. Moreover, it has lack of manpower. They are aware about the long practice of unauthorized water abstraction by city dwellers. Recently WASA is monitoring the unauthorized water abstraction by individuals in WASA area. WASA informed the authors that WASA is gradually trying to bring all the water abstraction means under their supervision. Construction of Rajshahi WASA surface water treatment plant is in progress to increase water supply and population coverage and to reduce the dependency on ground water.

Observation and Suggestions

It is found that most of the dwellers of Rajshahi city area are using personal source of water for drinking and domestic purposes. They are frequently using Submersible pump (deep tubewell) which is not permitted by law. This type of unnecessary excessive water abstractions is causing serious threat to sustainable groundwater management. Most of the people are not aware of the law and its negative effect. It is noted that penalty is widely imposed for installing unauthorized tubewell in WASA area. Even no effective monitoring activities of the authority are there to detect the act contrary to law. Awareness campaign of WASA authority among the water users is not outward.

Suggestions

Taking into consideration the existing facts some recommendations for sustainable domestic ground water abstraction management in Bangladesh are:

1. Government should take the initiative to create wide range of awareness about laws concerning ground water abstraction among the stakeholders.
2. Direct community voice and indigenous knowledge should be incorporated in the development of water related policies and mechanisms. This can be through government consultation or through local multi-stakeholder water governance platforms.
3. More institutional power and formal collaboration is required for WARPO to ensure inter-ministerial or inter-institutional co-ordination.
4. WARPO and WASA should review mechanisms and penalties for non-compliance for water extraction, and create more stringent sanctions and more effective mechanisms for penalizing noncompliant parties.
5. As local public representatives are included in the Integrated Water Resources Management Committees under Water Rules 2018, they should be more empowered.
6. As per Water Act 2013, the lowest safe yield level of any aquifer of all the area should urgently be fixed through necessary scrutiny.
7. Issue of license and unauthorized installation of personal tube well should be strictly monitored by WASA authority.
8. Coordination among WASA Act 1996, Water Act 2013 and Local Government Laws (City Corporation) 2009is needed.
9. Attention must be given to the development and management of surface water resources to ease pressure on groundwater.
10. Above all, authorities should be more active in proper implementation of laws.

CONCLUSION:

In Bangladesh, there are various laws and rules for protection and conservation of ground water resources, but the protection and conservation of the water resources in Rajshahi WASA area is still a transient

issue of the day in spite of such laws. It is noticeable that there has been lacking of proper, effective and timely enforcement of the laws on the subject matter. Water supply and demand management through groundwater replenishment, rainwater harvesting, reclamation, recycling and reuse, waste reduction and new source development plans can give increased security to domestic water supplies and resolve the current water deficit problem. In addition to press demands for new laws or changes in laws and actors, it is also important to activate the civil society to make best use of the existing laws as well as to mobilize public opinion and create pressure for more openness and inclusion.

ACKNOWLEDGEMENT:

The authors would like to express their sincere gratification towards Rajshahi WASA and Rajshahi City Corporation for providing necessary data to complete the work. Furthermore, the authors also acknowledge the theme enunciated in the Ph.D work of Dr. Md. Arifuzzaman as a great help in the present work.

CONFLICTS OF INTEREST:

The authors declare no conflict of interest.

REFERENCES:

1) Ahmed K.M. (2000). Groundwater arsenic contamination in Bangladesh: an overview. In: Bhattacharya P., and A.H. Welch, editors. Arsenic in groundwater of sedimentary aquifers.
2) Arifuzzaman, M., Hannan, M. A., & Rahman, M. A. (2019). Laws Regulating Water Pollution in Bangladesh. *J. of Sociology and Anthropology*, **3**(1), 15-24. https://doi.org/10.12691/jsa-3-1-3
3) Arifuzzaman, MD. (2019). Legal Framework for Ensuring Sustainable Water Resources Management in Bangladesh. *PhD Thesi*s Submitted to the Institute of Environmental Science, University of Rajshahi, Bangladesh, p. 305.
4) Biswas, A.K. (2004). Water and regional development. In: Biswas, A.K.,Unver, O. & Tortajada, C. (Eds.) Water as a Focus for Regional Development, *Oxford University Press*, New Delhi, pp. 1-13.
5) Global Water Partnership (GWP), (2000). Integrated water resources management. TAC. Background Papers No. 4ISBN9163092298, pp.68. https://www.gwp.org/globalassets/global/toolbox/publications/background-papers/04-integrated-water-resources-management-2000-english.pdf
6) Islam, M.A. (2017). Water Governance in Drought-prone Barind *Area*, Bangladesh: Challenges of Sustainable Development. *PhD dissertation*, Institute of Bangladesh Studies, University of Rajshahi, Bangladesh.
7) Kausher, A.H.M. (2017). Water Resources Management in Bangladesh: Past, Present and Future. *1st Inter. Conference on Engineering Research and Practice*, 4-5 Feb 2017, Dhaka, Bangladesh.
8) Qureshi, A.S., Ahmed, Z. & Krupnik, T.J. (2014). Groundwater management in Bangladesh: An Analysis of Problems and Opportunities. *Cereal Systems Initiative for South Asia Mechanization and Irrigation (CSISA-MI) Project*, Research Report No. 2., Dhaka, Bangladesh: CIMMYT. https://csisa.org/wp-content/uploads/sites/2/2014/01/Groundwater-management-in-Bangladesh-
9) Rasheed, K.B.S. (2011). Water Resources Management with examples from Bangladesh. *A H Development Publishing House*, **143**, New Market, Dhaka 1205, p 209.
10) Shovon KMA, Hannan MA, and Rahman MR. (2022). Assessment of the legal framework regulating waste management in Bangladesh, *Asian J. Soc. Sci. Leg. Stud.*, **4**(3), 94-105. https://doi.org/10.34104/ajssls.022.0940105

ENDNOTES:

[1]As per Rule 2(19) of Water Rule 2018, "Deep tube well" means a tube well which draws water from the ground water level by force through a submersible pump set or a turbine pump connected to a prime mover.
[2]Section 24 of WASA Act 1996
[3] https://rajshahiwasa.org.bd/daily-water-production/

[4]Bangladesh Water Act, 2013. Ministry of Water Resources, Government of Bangladesh.
[5]Section 4 of Water Act 2013
[6]Section 9 of Water Act 2013
[7]Section 16 of Water Act 2013
[8] 'Safe yield level' means the amount of abstraction of water that keeps the aquifer safe and protective.
[9]Section 19 0f Water Act 2013
[10]Rule 18 of Water Rule 2018
[11]Rule 29 of Water Rule 2018
[12]Rule 30(3) of Water Rule 2018
[13]MoWR, 2016.Water Governance in Bangladesh: Compendium of Water Laws. *Government of Bangladesh & IWRM Project (Jointly implemented by WARPO, SRC, DASCOH and financed by SDC)*
[14]Section 24 of WASA Act, 1996
[15]Rule 30 (3) of Water Rule 2018

Citation: Arifuzzaman M., and Islam S. (2024). Compliance of legal restrictions in potable water abstraction in Rajshahi WASA area: an overview, *Br. J. Arts Humanit.*, **6**(3), 138-145.
https://doi.org/10.34104/bjah.02401380145