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The Impact of Groundwater Utilization Permits in Environmental Legal Assessment

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ABSTRACT

The background of this research comes from the phenomenon that issuing groundwater utilization permits faces a few problems. First problem is public institutions or companies do not consider it important to get permits. Second problem is there is no research explaining how the permits relate with environmental law assessment. This study determines the impact of the issuing of groundwater utilization permits on environmental law and analyses the impact before and after receiving permits focusing on socio-economic, environment, and administrative aspects. Around 100 respondents from 100 institutions and companies in North Sumatera province are interviewed. For in-depth research we interview person in-charge of three different institutions Estomihi Medan Hospital, Grand Antares Hotel, and Bahagia Swimming Pool. By using SPSS software it shows that there is an impact of groundwater utilization permits on environmental law on the socio-economic and environmental aspects but not on the administrative aspect.

Keywords: environmental law, groundwater, permit, utilization

1. Introduction

The need for clean water is increasing due to population growth and the increasing quality of life. This demand drives the extraction and utilization of as much water as possible. There is concern that there will be an imbalance in the water supply, which will lead to a shortage of clean water because water management, including surface water, has not kept pace with the increase in the rate of water use. The use of groundwater becomes an alternative because the availability of surface water is limited. Groundwater usage without regard to environmental health has negative impacts such as a decrease in groundwater levels, groundwater contamination, and land subsidence. This problem arises especially in big cities in Indonesia. [1]. In this context, the government has a central role in regulating environmental permits, including granting groundwater concession permits. Indonesian law or “undang-undang” in UU no. 32 of 2009 states that in addition to paying attention to compliance with laws and regulations in the environmental sector, supervision is carried out to see the compliance of people responsible for business/activities with environmental permits [2].

More importantly, the connection between administrative sanctions and business permits is "if the environmental permit is revoked, the business permit or activity cancelled, "This provision demonstrates the

desire of legislators to implement a permit chain. The explanation above shows that only half of the permit chain was adopted. An environmental permit is indeed a requirement for issuing a business permit. Although ideally, revocation of environmental permits is a sufficient condition for cancellation of business permits, in practice this is not always the case [2]. The functional meaning of environmental permits in environmental management efforts is reflected in the accuracy of permit requirements that are administratively relevant to environmental protection. Through the terms of this permit, the environmental permit instrument has an important meaning in the context of preventing environmental pollution as well as for assessing the company's environmental management performance.

The environmental permit requirements contained in the permit document are directives that must be complied with by the permit holder. The agency authorized to issue environmental permits must formulate all operational aspects of industrial activity in the form of an environmental permit. Issuing of environmental permit requirements must be carried out carefully and thoroughly. Environmental permits issued are only intended for environmental protection if the permit requirements required are explicitly stated, strong, precise, directed, measurable, and can be implemented [3].

This research is focused on analyzing the process of issuing "SIPA" (Surat Izin Pemanfaatan Air Tanah) specifically for business activities, from the initial process of permit issuing until the completion of the permit. Business/commercial activities that utilize groundwater including supply and allocation through drilling or excavation, extraction, and utilization of groundwater are required to have a permit. Thus the purpose of the study is to analyze the impact before and after the issuing of permits and how it relates to applicable environmental law.

2. Method

The method uses SPSS regression approach to answer two research questions. First, how is groundwater utilization permits regulated; and second what is the impact of the issuing of the permits on environmental law assessment? This study examines documents of issuing permits. We collect data from 100 documents and 100 respondents as sample consisted of 50 documents/respondents from companies or communities that come to apply for permits and 50 documents//respondents from companies or communities that do not or have not applied for groundwater utilization permits. To analyse data, this study this study takes 3 tests namely validity, reliability, and normality tests. These tests then retest again using differential test (t-test).
To gain more knowledge we conduct depth interview to three informant keys from Estomihi Hospital, the Grand Antares Hotel, and Bahagia Swimming Pool. The selection of subjects is based on the fact that Estomihi Hospital has problems in issuing permit while Grand Antares Hotel has successfully received permit and Bahagia Swimming Pool has not applied for permit at all.

3. Result and Discussion

3.1. Validity and Reliability Test

The validity examines the conditions experienced by respondents before and after receiving permit concerning three sub-variables namely socio-economic, environmental, and administrative as well as the application of environmental law. For this process, the Pearson Product Moment Correlation Test is used. Each item will be tested for its relationship with the total score of the variable concerned. Item reliability is tested by looking at the Alpha Coefficient by conducting Reliability Analysis with SPSS ver. 16.0 for Windows.

3.1.1. Before Processing of Groundwater Utilization Permit

The validity test results before issuing the groundwater utilization permit consisted of three questions namely socio-economic (1-3), environmental (4-7), and administrative (8-10) showed in Table 1.

Table 1. Validity Test Before Issuing the Groundwater Utilization Permit

No	Questions	Pearson's r Value	df	Description
1	What was the condition of income from the business before obtaining the groundwater utilization permit document?	0,674	0,163	Valid
2	What was the condition of business asset ownership before obtaining the groundwater utilization permit document?	0,561	0,163	Valid
3	How is the relationship between the entrepreneur and the investment and licensing office related to the processing of the groundwater utilization permit?	0,567	0,163	Valid

4	What was the groundwater clarity condition at your business location before obtaining the groundwater utilization permit?	0,588	0,163	Valid
5	What was the groundwater scent condition at your business location before obtaining a groundwater utilization permit?	0332	0,163	Valid
6	What was the groundwater taste condition at your business location before obtaining a groundwater utilization permit?	0,202	0,163	Valid
7	What was the condition of groundwater turbidity at your business location prior to obtaining a groundwater utilization permit?	0,332	0,163	Valid
8	What was the condition of groundwater turbidity at your business location before obtaining a groundwater utilization permit?	0,693	0,163	Valid
9	What is the effectiveness of the administrative flow that must be followed in processing the groundwater utilization permit document?	0,644	0,163	Valid
10	What is the rationality of the administrative flow that must be followed in processing the groundwater utilization permit document?	0,712	0,163	Valid

The results of the validity test on the conditions before the management of the groundwater utilization permit show that all question items have a Pearson's r Value above the df value. In other words, it can be concluded that all questions are valid.

3.1.2. *After Issuing the Groundwater Utilization Permit*

The results of the validity test after issuing groundwater utilization permit consist of three questions socio-economic (1-3), environmental (4-7), and administrative (8-10 showed in Table 2.

Table 2. Validity Test Results After Issuing Groundwater Utilization Permit

No	Questions	Pearson's r Value	df	Description
1	What is the condition of income from business after processing the groundwater utilization permit document?	0,208	0,163	Valid
2	What is the condition of business asset ownership after obtaining the groundwater utilization permit document?	0,320	0,163	Valid
3	How is the relationship between entrepreneurs and the investment and licensing office related to obtaining a groundwater utilization permit?	0,442	0,163	Valid
4	What is the condition of groundwater clarity at your business location after obtaining a groundwater utilization permit?	0,308	0,163	Valid
5	What is the condition of groundwater aroma at your business location after obtaining a groundwater utilization permit?	0,288	0,163	Valid
6	What is the condition of groundwater taste at your business location after obtaining a groundwater utilization permit?	0,227	0,163	Valid
7	What is the condition of groundwater turbidity at your business location after obtaining a groundwater utilization permit?	0,322	0,163	Valid
8	What is the efficiency of the administrative flow that must be followed in processing the groundwater utilization permit document?	0,846	0,163	Valid
9	What is the effectiveness of the administrative flow that must be followed in processing the groundwater utilization permit document?	0,779	0,163	Valid
10	What is the rationality of the administrative flow that must be followed in processing the groundwater utilization permit document?	0,798	0,163	Valid

The results of the validity test on the conditions after obtaining a groundwater utilization permit show that all question items have a Pearson's r value above the df value. In other words, it can be concluded that all questions are valid.

3.1.3. Application of Environmental Law

The results of the validity test of the application of environmental law consist of five supervision questions (4a-4e), three control questions (4f-4h), and three questions for soil conservation (4i-4k) showed in Table 3.

Table 3. Application of Environmental Law

No	Questions	Pearson's r Value	df	Description
1	How are efforts to overcome environmental pollution according to Law No. 32 of 2009 concerning environmental protection and management?	0,592	0,163	Valid
2	How is the technical implementation of groundwater extraction licensing at the investment office according to Pergub No. 39 of 2020 concerning the implementation of integrated licensing services?	0,648	0,163	Valid
3	How to supervise the implementation of technical requirements stated in the Drilling Permit and Groundwater Utilization Permit?	0,340	0,163	Valid
4	How is the supervision of the implementation of environmental management efforts and environmental monitoring efforts or environmental impact assessments?	0,644	0,163	Valid
5	How to monitor the possibility of pollution and damage to the groundwater environment?	0,656	0,163	Valid
6	How are groundwater quantity and quality monitored?	0,625	0,163	Valid
7	How to monitor the environmental impact of groundwater utilization?	0,646	0,163	Valid
8	How do monitor land use and function change?	0,737	0,163	Valid
9	How does the groundwater recharge process work?	0,708	0,163	Valid
10	How is groundwater withdrawal regulated?	0,466	0,163	Valid
11	How is groundwater protection?	0,651	0,163	Valid

The results of the validity test on the application of environmental law show that all question items have a Pearson's r Value above df value. In other words, it can be concluded that all questions are valid.

3.1.4 Difference Test Result

The results of the t-test were used to see if there was an increase in the application of environmental law before and after the processing of the groundwater utilization permit document. The t-test was conducted using two alternative methods, namely parametric statistical tests and non-parametric statistical tests. The t-test is conducted by comparing the mean difference of two samples. This can be done by observing the following conditions:

a. Comparing the mean scores before and after the groundwater utilization permit was issued. Comparing the average value by looking at the mean result of the data whether there is an increase in the application of environmental law before and after the processing of the groundwater utilization permit document.
b. Looking at the P value
   By looking at the P-Value, it means analyzing whether there is an influence between before and after on the application of environmental law.
   1. H_o is accepted if T count < t table at $\alpha = 5\%$.
   2. H_o is rejected (H1 is accepted) if T count> t table at $\alpha = 5\%$.

To test the hypothesis, the researcher proposed it as follows:

H_o: There is an influence of the impact of groundwater utilization permits in the Integrated Investment and Licensing Office of North Sumatera Province on the application of environmental law.

H_1: There is no influence of the impact of groundwater utilization permits in the Integrated Investment and Licensing Office of North Sumatera Province on the application of environmental law.

Average value and the P Value can be seen in Table 4.

Table 4. Average Value of Variable

		mean	N	Std. Deviation	Std. Error Mean
Pair 1	Before the handling of the groundwater utilization permit	0.88	100	0.327	0.033
	After handling the groundwater utilization permit	0.90	100	0.302	0.030

The table above shows that the average value before the management of the groundwater utilization permit was 0.88 and 0.90 after the management of the Groundwater Utilization Permit. This indicates that the existence of the groundwater utilization permit document has improved socio-economic, environmental, and administrative impacts. The p value can be seen in the following table 5.

Table 5. P Value Analysis

		Pairing Differences					t	df	Sig. (2-tailed)
		mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		mean	Std. Deviation	Std. Error Mean
Pair 1	Before the handling of the groundwater utilization permit - After handling the groundwater utilization permit	0.020	0.449	0.045	0.109	0.069	0.445	99	0.047

The p value in the table above is 0.47. This value is smaller than 0.05. Ho is accepted. In other words, groundwater utilization permits at the Integrated Investment and Licensing Office of North Sumatera Province have an impact on the application of environmental law.

3.2. Depth Interview

Depth interview conducted to managers and persons in charge of Estomihi Hospital, Grand Antares Hotel, and Bahagia Swimming Pool.

Estomihi Hospital uses groundwater in its operations. However, the hospital management explained that although they do not have a permit, the hospital uses groundwater for its water needs. The following is an excerpt from an interview conducted in February 2022 with Estomihi Hospital Public Relations Staff named Daniel Rambe S.Kep., Ns, CWCCA:

> *The table above shows that the average value before the management of the groundwater utilization permit was 0.88 and 0.90 after the management of the* groundwater utilization permit. *This indicates that the existence of the groundwater utilization permit document has improved socio-economic, environmental, and administrative impacts.*

The previous argument suggests that Estomihi Hospital does not understand whether implementation is following Law No. 32 of 2009; rather, implementation appears ineffective because although the company has paid taxes, it has not confirmed that it has a groundwater extraction permit.

Grand Antares Hotel is one of the companies that has a groundwater utilization permit issued in 2010. The hotel received information about the importance of groundwater withdrawal permit documents when paying taxes to the North Sumatera Provincial Revenue Office. From this information, Public Relations consulted

with the hotel owner to immediately take care of licensing because they were reluctant to deal with parties that could harm the company. Through an interview with Ms. Amrina Damanik in Public Relations on February 18, 2022, the following arguments related to this matter:

> *"Technically, as we know, the investment office comes to check our wells for water quality, well depth, and the presence of a water meter. The rest is just checking documents."*

The above interview illustrates that the existence of a groundwater utilization permit can reduce losses in state revenue. Grand Antares Hotel realizes this fact and tries to comply with the applicable rules.

> *"Before the water tax was paid, the amount was determined by those in charge of the budget; usually we charged 5 million per month. However, after the water meters were installed, water usage, as reported by the water meters, sometimes reached 6 million, and sometimes 5 million."*

The interview snippet above shows that the tax changed after the hotel obtained the groundwater utilization permit. The water meter precisely measures the company's water usage.

The environmental impact felt by the Grand Antares Hotel before and after the permit application is almost invisible. According to an interview with Ms. Amrina Damanik in Public Relations on February 18, 2022:

> *"The environmental impact is almost invisible because the difference is only in the paperwork. The difference is that every time the license expires, we have to renew it again, which is sometimes very inconvenient, but in order to comply with the law, we do it anyway."*

In addition to the invisible environmental impacts, what is felt more by every company, especially the Grand Antares Hotel, is the existence of permit documents. After taking care of the groundwater withdrawal permit, the most visible is the ongoing processing of the permit document which continues to be renewed every five years.

Bahagia Swimming Pool, located on Jalan Bahagia By Pass, is a company that uses groundwater in its operations. Unlike Estomihi Hospital and Grand Antares Hotel which already have permits, this company still needs to obtain a groundwater utilization permit document.

> *"Indeed, we do not have a permit. We were not reminded to apply for a permit. After all, we always pay taxes every time we pay taxes," as stated in the above interview with Andy Napitupulu as Public Relations Staff on February 16, 2022.*

The interview resumed in Table 6.

Table 6. Groundwater Utilization Permit Document Qualitative Results Matrix

No.	Company	Groundwater Utilization Permit Document	Underground Water Users	Result
1	Estomihi Hospital	Active	Yes	Inspected
2	Grand Antares Hotel	Active	Yes	Fully aware
3	Bahagia Swimming Pool	Inactive	Yes	Not aware of needing a permit

From the results of the research through the results of the t-test seen based on 2 forms of testing, namely comparing the average value and looking at the P Value, the average before obtaining a groundwater utilization permit is 0.88, and after processing the groundwater utilization permit is 0.90. In other words, it can be concluded that changes occurred after the issuing of the groundwater withdrawal permit on environmental law. The environment and administration affect the application of environmental law. In this case, people or business owners feel that the groundwater utilization permit document is mandatory because, after the management of the groundwater utilization permit, businesses feel the impact of the application of environmental law, especially groundwater withdrawal. Based on the descriptive analysis test of the impact before obtaining a groundwater utilization permit can be seen in the following table 7.

Table 7. After-effects of issuing a Groundwater Utilization Permit

No.	Category	Number(s)	Percentage (%)
1	Impact	10	10
2	No Impact	90	90
	Total	**100**	**100**

The table above shows that 90% had no socioeconomic, environmental, or administrative impact after obtaining groundwater utilization permit and 12% had an impact. In other words, after groundwater utilization permit processing, the businesses owned by respondents had an impact on the socio-economy, environment, and administration by 2%.

However, the results of this description conclude that only socio-economic impacts are impacted after the processing of groundwater utilization permit documents, namely by installing a water meter, the company already has fixed costs that must be paid by it, then obtaining permits regularly every five years also adds to the company's costs. However, this is different from the environmental impact, which is not felt, where the business still has good water quality. This also applies to administrative impacts where despite the policy to continuously renew the permit, every company complies.

The facts mentioned above are also supported by an example from Medan's Estomihi Hospital, which had taken care of the groundwater withdrawal permit documents but generated problems when the Investment Office conducted an inspection. The hospital complained that the socialization was never clearly conveyed. This shows that the implementation of environmental laws remains inadequate, although the impact on businesses is persisting.

3.3. Impact of Groundwater Utilization Permits on Environmental Law

Based on the results of hypothesis testing, the significant result in the t test is 0.047. Based on the provisions, if the significance value of variable X is less than 0.05, then there is a significant influence on variable Y, and vice versa. In other words, it can be concluded that there is an impact of groundwater utilization permits on environmental law. Both from the socio-economic, and environmental aspects. In this case, the community or business owners feel that the groundwater utilization permit document is mandatory because after taking care of the groundwater utilization permit, business people feel the impact of the application of environmental law, especially in groundwater utilization.

This result is supported by the socio-economic, environmental, and administrative impacts before and after obtaining a groundwater withdrawal permit, which most respondents responded favorably to. In other words, by managing the groundwater utilization permit document, the implementation of environmental law will be better.

The case description also supports this in Grand Antares Hotel, Medan. The company tried to comply despite complaining that the fees paid could exceed the previous fees before the documents and water meters were installed. However, the company believes that the existence of the groundwater utilization permit document is not only a legal responsibility for the company drawing groundwater but also a form of legality for them as a medium-sized company, which will also impact the reputation and sustainability of the company's operations.

The procedure for obtaining a groundwater use permit is set out in the applicable regulations. In addition, once a permit has been issued, the permit holder or owner must pay attention to the permit. If the permit holder conducts activities that exceed the rules for groundwater use, causing damage to the natural environment, then he or she may face legal consequences stipulated in the law. Law No. 7 of 2004 on Water Resources in Article 3, which is also the objective of water resources management, instructs that "water resources are managed in a comprehensive, integrated and environmentally friendly manner to realize the sustainable use of water resources for the welfare of the people." Based on this regulation, water resources that need to be managed properly will improve people's welfare, and people's needs for daily water needs can be supported.

North Sumatera Governor Regulation No. 27/2018 on Guidelines for Calculating the Basic Price of Water to Calculate the Acquisition Value of Groundwater in the Regency/City of North Sumatera Province is related to the right to use water from land obtained without a permit for individual daily needs and small-scale agriculture. The right to use water from land use to meet individual daily needs is stipulated to use land from boreholes with a maximum diameter of 4 (two) inches, use groundwater using human power from dug wells,

or use groundwater less than 100 m3 / month per household without using a centralized distribution system and for the three case studies the purpose of the use is for business activities then the company is required to have a groundwater utilization permit.

North Sumatera Governor Regulation No. 39 of 2020 explains that: "The provision of groundwater for management, supply, use, development, and utilization aims to meet the water needs of groundwater utilization for various purposes with its quality and quantity. The provision of groundwater in the province is carried out based on the order of priority, namely basic daily needs, smallholder agriculture, environmental sanitation, tourism, industry, and other interests."

The quantitative data results showing the impact of groundwater contraction permits on the socio-economic status of companies reflect weak oversight in North Sumatera. The discrepancy between the amount to be paid before and after applying for a permit is a result of weak socialization from the agencies concerned, especially the investment office.

This is also supported by the results of the qualitative data, where the three companies described are representative of the groundwater licensing mechanism in North Sumatera Province. Weak socialization at some stage creates reluctance. Companies in North Sumatera are quite prepared to follow the rules, but the socialization that inspections by the Investment Office sometimes accompany has resulted in the relatively weak application of environmental law.

4. Conclusion

Based on the results of the research, it can be seen that the impact of the issuing of groundwater utilization permits will affect the application of environmental law, especially related to the utilization of groundwater sources, especially in socio-economic aspects such as the price of usage rates that increase according to usage in the water-meter, but this influence is still very small, where socialization is lacking so that people still complain about groundwater utilization permit document management because there is no notification but at certain moments officers come to conduct inspections. Then in the environmental aspect, the application of environmental law after the issuing of groundwater utilization permit can be seen from the increasingly massive environmental protection measures in groundwater withdrawal, but it must be recognized that this application can only be carried out in companies that have issued groundwater utilization permit permits, but for those who have not, this is still in the form of appeals and inspection reports. From the administrative aspect, there is no significant change, only the procedure for applying for environmental permits is much more organized.

As a result of the case studies, the existence of groundwater sources is a necessity for businesses, both companies and small businesses that require large volumes of water usage. However, the existence of a groundwater utilization permit in North Sumatera Province creates a dilemma, where there are still factors that hinder and need further attention, for this reason, it is necessary to socialize with the community, where tax payment does not mean that it is legal to take groundwater, but the existence of a groundwater utilization permit document is the main requirement where the permit arrangement followed by the installation of a water meter will allow payment following usage. Based on this, comprehensive management is needed so that the community understands the importance of groundwater utilization permit documents to regulate groundwater use.

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