

# Planting Values for Saving Groundwater through Family Education

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## Abstract

This study aims to determine the planting values for saving groundwater through family education in Larangan Selatan sub-district of Tangerang. The research respondents were parents from 40 families in Citizen Association (RW) 10 Cileduk Tangerang. Data collection techniques using questionnaires, sampling techniques using purposive sampling. Research instruments include planting water-saving values through explanation, giving examples, reminding, direct reprimand, telling, getting used to. For observing, focus that be observed were 4 things on the house yard of respondent, were about: The provision of bio pores, rainwater infiltration ponds, the provision of land in the yard, increasing vegetation in the yard. The results of the study showed that parents carrying out educational tasks, namely instilling economical value in the use of groundwater were in good category, namely they conveyed to their children to save water. Parents often rebuke directly if it is seen that children do not use water sparingly. The result of the observation is the houses still provide land for rainwater infiltration and they are all plant a yard with plant and flowers on a pot. There is no houses has biopory and rain fed wells. For this reason, it is recommended that the head of citizen association (RW) give an example and invite community leaders who can explain the importance of instill low value in using water.

## Keywords

Groundwater, Saving Water Values, Education

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## 1. Introduction

Before the human population was as large as it is today, water was available abundantly to meet human needs. Groundwater seems to be available and will not run out for humans. In the area of Tangerang, the community uses groundwater to meet their daily water needs. When the population increases and the use of

water in all human activities increase, the impact begins to be felt. Indications of groundwater begin to decrease; the depth of making boreholes to obtain groundwater is increasingly difficult to obtain springs. In certain regions water begins to feel no longer truly fresh water, this is affected by eruption of seawater. In addition, flooding is easy because the land decreases by almost 1 cm every year. Groundwater resources are increasingly being exploited so that the volume decreases. Based on data from the DKI Provincial Government [1] every year the land surface in Jakarta falls by 0.8 cm, so now its altitude is only 0 - 10 meters above sea level. On the other hand, sea level rise is 0.57 cm per year. Jakarta's groundwater continues to be threatened, because every year groundwater falls. About 87 percent of them are caused by high-rise buildings and the remaining 13 percent are caused by uncontrolled groundwater extraction [1]. In response to the above problems, efforts are needed from the smallest level of society, namely households to conserve uncontrolled use of groundwater. It is felt important for families to carry out the role of education for all family members to instill the need for a water-saving movement that starts with the family. With the hope that if every household makes an effort to save water, the negative impacts that will be experienced can be minimized. The role of the family is expected to provide education to family members including themselves, exemplifying economical behavior towards groundwater [1]. Stated (2008) that one of Jakarta's programs on groundwater conservation is 5 T, namely: Reduce, reuse, recharge, recycle, and recovery. For this reason, all the people living in Tangerang and surrounding areas to participate in overcoming the problem of decreasing the amount of water in the soil to meet the needs of the community [2]. Argues that groundwater is water found in layers of soil or rocks below the surface of the soil and it is one of the resources [3]. Groundwater itself is divided into several types. There are surface groundwater, underground rivers, geysers and so on that groundwater is water that is found in layers of soil or rocks below the surface of the soil. So many benefits of groundwater, this type of water must be conserved. Based on the results of the 2016 Research Center for Natural Resources (Pusair), Indonesia has potency. According to [4] the dependence of clean water supply and groundwater has reached  $\pm 70\%$ . The availability of surface water is 2783.2 billion  $m^3$ /year. This considerable potential has spread unevenly throughout Indonesia. The biggest potential for surface water is in Kalimantan Island, which is 33.6%, then Papua is 27.2% and Sumatra is 21.5%. The smallest potential for surface water is in Bali-Nusa Tenggara, which is 1.3%. Java Island, which is inhabited by nearly 60% of Indonesia's population, only has a water potential of 4.2%. So that the island of Java experiences the highest pressure on water needs so that the condition of the availability of water has been very critical. However, the problem is not only related to the amount of water needed compared to its availability, but the problem is further aggravated due to other water resources problems such as water quality degradation and flood disasters [5]. Need to change attitudes, most people who tend to be wasteful in the use of groundwater ignore the element of conservation. Family education is education that must

have been experienced by someone since he was born, and In general education in the family (household) is not based on refusal of awareness and understanding born of educating knowledge, but because it is natural. [6] Changes in attitudes and behavior can be started from home through family education [7]. Informal education is also called family education, where education starts with the family. WHO states that in [8] family functions include the Education Function. And [9] fostering environment through conservation of natural protection and preventive actions to maintain the potential and allocation of groundwater resources.

## 2. Research Methods

Research uses a quantitative approach. The research location is the residents of the community and the home/yard environment of residents in the Rukun Warga/Community Unit 10 of the Larangan Selatan. Questionnaires of the research was the planting of water-saving values that parents do include: getting used to, explaining, reminding, direct reprimand, and exemplifying how to save water. Respondent must to answer 9 question. Collecting data is done by distributing questionnaire to the community. While distributing and collecting data, house yard was observed. Focus that be observed were 4 things on the house yard of respondent, were about: the provision of bio pores, rainwater infiltration ponds, the provision of land in the yard, increasing vegetation in the yard. The result of the observation the results of the observations were analyzed descriptively. Samples were taken by purposive sampling technique with consideration that in the community unit (RW) there are live 160 families. From 160 families, were taken 40 families who have family members that have children need to be educated by parent and still stay in the house. Data that had collected were analyzed. Analyze data by descriptive percentage. For the data got from the questionnaires, the assessment criteria are based on the average acquisition of the distribution of the selected items often, rarely, never after that are the categories of high, medium, and/or low determined in the planting of water-saving values by parents at the study site. The research questions were 9 questions, and 4 aspects were observed.

## 3. Research Result

From **Table 1** it can be seen as a whole that the acquisition frequency of the respondents' answers in using groundwater saving is 24 average. This number is for entering the high category, the frequency of those who answer rarely is 10.3 for the medium category and the answers that have never been obtained 5.3. Thus it can be seen and concluded that families/parents often make efforts to save water to children by explaining, reprimanding, giving examples, reminding, telling, and getting used to. The results of observations to residents' houses did not obtain any bio pore wells and water absorption ponds. Almost all of the yards are overgrown with vegetation, both using soil and in pots. Each house provides a land yard which is still left to absorb water. The ground is not covered with cement.

**Table 1.** Recapitulation of planting water-saving values.

Indicator	Question	Frequent		Rarely		Never ever	
		Frequent	(%)	Rarely	(%)	Never ever	(%)
	1) Turn off the water pump and/or tap water immediately	31	77.5	9	22.5	0	0
	2) Recycle/use water that can still be used for other purposes	25	62.5	15	37.5	0	0
	3) Turn on the tap correctly (Example)	20	50	10	25	10	25
1) Remind	4) Combine water use activities in one activity to save money	20	50	5	12.5	13	32.5
2) Direct reprimand	5) Use water as needed	24	60	14	35	2	5
3) Give an example	6) Do not allow water to drain unused when in the process of use	30	75	10	25	0	0
4) Order	7) Impacts if groundwater runs out, explaining what the groundwater functions to the child	10		16		14	
5) Explain	8) Water the plants in the morning/evening	34	85	6	15	0	0
	9) Use a little detergent to wash	22	55	9	22.5	9	22.5
	total	216		93		48	
	Average	24		10.3		5.3	

#### 4. Discussion

The need for water increases in line with the increase in population, an increase in urban areas, an increase in the amount of water used per capita, an increase in sanitation needs, an increase in industrial and agricultural needs, and other challenges in line with the progress of civilization in human life [10]. Population growth starts from the family. The first and foremost water users are from families. In the family of parents are educators who are full of value. One of the functions of the family is to instill the value of environmental education to their children. The value of environmental education is more on the use of energy and natural resources in the household namely electricity, gas and water. Planting value on children to save water using water is an important thing. Because water, especially groundwater, which has been used by the community, has limited availability. If exploited, the water will be polluted because the surface of the land drops, it is difficult to get water, even the floods can easily come. This water-saving education effort can be carried out by parents through informal/unplanned methods such as transfer of knowledge, values, and hard skills and soft skills about water. Although parents do not plan as in other activities. Parents will instinctively make efforts to advise, reprimand, warn, give examples, explain, familiarize and others with children. Parents can at any time not know the time and activities to educate/admonish, warn, give examples, explain, and get used to. Children are formed from educational patterns and examples developed by parents. At home, children carry out personal hygiene activities namely: Bathing, washing vehicles. Cook, clean the house, water the plants, and others. But children are also involved in helping parents' activities. This is where parents educate/instill value values starting from explaining, reprimanding, etc.

In addition to instilling value through the transfer of knowledge, values, skills, observing the activities and efforts of parents towards structuring the physical environment for the purpose of groundwater conservation carried out in the form of greening in the yard and the provision of land in the yard to absorb water when it rains. The community has not done it to make bio pores and rainwater infiltration ponds. This is understandable because the land area of the housing is small so there is only a small amount of land for the yard to plant plants. But people use small land by doing greening both on land and planting in flower pots. Knowledge of the benefits of bio Pori is not yet in the community. Knowledge of the land as groundwater recharge already exists. In the implementation of making bio Pori there needs to be motivation from the head of the neighborhood association (the head of community unit) and head of village. Greening in the yard is done by almost all residents. What distinguishes reforestation is from the number of plants and types of species. There are even residents who put flower pots around the side of the road above the trench cover at home. The previous method was explained for the first time, and then the child was given a direct rebuke. The schedule of educational activities for environmental values is not sequential, according to the activities of water use activities for what and when. Visible water use activities can be carried out by direct reprimand. The use of water that is not seen by parents can be done by reminding and giving a message so that later when the water is/almost full it is ready to immediately shut down the pump or the tap. The way parents do to instill water-saving behavior is: Explaining, reminding, reprimanding, telling/ordering giving examples, getting used to. This is also influenced by the lack of understanding that groundwater if not saved will harm the community itself later. Parents educate their children in various ways to instill good values including caring for natural resources, preserving the environment, caring for the environment. Education conducted by parents on children/family members when they are associated with activities using water. These activities are: washing clothes, washing dishes, cleaning houses and yards, cooking, watering plants, washing motorbike/car vehicles, cleaning/bathing. Parents can reprimand the child if they do not turn off the tap, water pump, take shower using excess water, and turn off the tap immediately. Parents educate their children (tell and reprimand), remind them. Often children doing activities that use water such as washing motorbike vehicles/cars do not turn off the water tap or contain it. So that the water stays out profusely while for a while the water has not been used. This deadly laziness is because it does not have the sense and knowledge of the availability of groundwater which will decrease over time. Turn the pump immediately (ordered and reprimanded), the old man told his son to turn off the water suction pump because the water tank was full of reservoirs. This often happens, the water tank is overflowing, and the reservoir is full, not anticipated and not immediately shut down. Parents teach children to recycle/use water that can still be used for other purposes by giving examples, and explaining. This is also done in the activity of watering flowers, cleaning the porch floor, brushing the bathroom and toilet, as

an example, parents also do how to turn off the tap properly after using for example from ablution. Parents reprimand when children use water to wash vehicles, when they are not in use so they are not wasted.

## 5. Conclusion

Based on the results of the study it can be concluded that the planting of groundwater-saving behavior carried out by parents entering the category is quite high. Parents have made environmental education efforts by instilling water-saving values for children. Parents often reprimand directly, give examples and remind their children/family members to behave in water-saving ways. Conceptual understanding of the need to save groundwater is less done by parents. Through the example of the behavior of parents, children participate in greening the yard with plants planted both on the ground and in pots. It is suggested to the RW and Village Head to increase efforts to save groundwater by socializing to the community the importance of actions to conserve groundwater by making bio Pori.

## Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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