



## Çevre Sorunları ve Halkın Çevre Duyarlılıkları Üzerine Araştırma; Örnek Çalışma

### Research on Environmental Problems and People's Environmental Sensitivity; A case study

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#### Öz

Çalışma, Samsun İlinin Atakum ilçesinde yaşayan halkın, yaşanan su sorunlarına bakışı değerlendirmek amacıyla rastgele belirlenen 363 kişi ile yürütülmüştür. Yapılan bu çalışmada halkın bazı kişisel özelliklerinin (cinsiyet, yaş, yerleşim yeri, eğitim durumu ve meslek) su sorunlarına ilişkin görüşlerinde fark yaratıp yaratmadığı incelenmiştir. Çalışmada literatür taraması yoluyla geliştirilen 31 soruluk anket katılımcılara yöneltilmiştir. Bu anket aracılığıyla halkın, su sorunlarına bakışı, sularla ilgili karşılaşılan problemlerin yol açtığı sorunlar hakkında bilgi sahibi olup olmadıkları ve ücret politikalarının uygunluğuna ilişkin görüşleri belirlenmeye çalışılmıştır. Anketin geçerliliği için uzman görüşü alınmış ve güvenilirlik çalışmaları yapılmış olup verilerin analizinde SPSS 22 programı kullanılmıştır. Su sorunlarına halkın bakışını ölçmek için yapılan çalışmanın anket sonuçları değerlendirildiğinde, bu durum halk tarafından ciddi bir problem olarak görülmektedir. Halkın su sorunlarıyla ilgili değerlendirmeleri göz önüne alınarak, yaşanan ve yaşanabilecek sorunlarına yönelik çözüm önerileri elde edilen bulgularla desteklenerek çalışmada sunulmuştur.

**Anahtar Kelimeler:** Çevresel problemler, su kalitesi, su sorunları, atık su

#### Abstract

The study was carried out with 363 people randomly determined to evaluate the perception of encountered water issues of the people living in the district of Atakum in Samsun Province of the Middle Black Sea Region, Turkey. In this study, it was examined whether some of the people's personal characteristics (gender, age, place of residence, education status and occupation) made a difference in their views on water issues. In the study, a survey of 31 questions developed through literature review was directed to the participants. Through this survey, was tried to determine if people their views on water issues, whether they had information about the problems caused by water-related issues, and opinions on the appropriateness of payment policies. For the validity of the survey, expert opinion was taken and reliability studies were made and SPSS 22 program was used in the analysis of the data. When the survey results of the work done to measure public opinion on water issues are evaluated, this is seen as a serious problem by the public. Considering the people's evaluations about water issues, the solution proposed for the issues that may be experienced and experienced is presented with the findings supported by indications.

**Keywords:** Environmental problems, water quality, water issues, wastewater

## 1. Introduction

Water is the most necessary source of the world [1]. Only 0.007% of all water available on the earth's surface is available for human consumption [2]. Water is not only important for living things, but also for the sustainability of the ecosystem. Water is a necessary source of economic activities such as irrigation, hydropower, and fishing etc. Adequate water supplies enhance living standards and promote opportunities for development. Hence, having access to water is not only a human right in itself but also an essential tool for the realization of all other human rights [1],[3],[4]. Water is essential for the sustenance of human health. Globally, there has been some positive trends on improving access to clean and safe drinking water and improved sanitation under the Millennium Development Goals (MDGs) for the past 15 years [5],[6],[7]. Different issues are encountered throughout the world in the formation, use, and control of water resources. Degradation of water quality can be caused by natural processes as well as by human processes. Surface waters (river and lake) are used for purposes such as drinking water, irrigation, energy production and fishing [8]. In recent years, both the anthropogenic influences (urban, industrial, and agricultural activities) as well as natural processes (precipitation inputs, erosion, weathering of crustal materials, degradation of surface waters and rendering the water bodies unsuitable for both primary and secondary use) have increased utilization of water resources [9],[10],[11],[12]. Water has been one of the main factors determining the fate of civilizations for centuries [13],[14]. Like many natural resources, water was regarded as an infinite source but the increasing population and accompanying urbanization, industrialization has led to the rapid depletion of natural resources. This causes it to be confronted with water issues as it is in many countries of the world. Our country is affected by natural and anthropogenic events, and this affects many systems in the ecosystem. Deterioration an ecosystem affects water resources, water quality, and usable water potential; leading to water issues that people are confronted with. Today; the increasing population and urbanization, the issues in the infrastructure that is living with the developing

industry, the concentration of agriculture and livestock activities and the increase of domestic wastewater lead to environmental pollution. This environmental pollution is causing damage both to the natural balance and to the deterioration of water quality in the receiving environment such as rivers and lakes [15]. The main source of the water issue is that the natural resources remain constant in response to increasing demand. The main reasons for the increase in water demand are population increase, industrialization, and increase in the need for agricultural irrigation. On the other hand, the rapid deterioration of water quality, ineffective water use, conflicts in water-sharing, lack of detailed water policies, financial issues, poor institutionalization and lack of participation constitute the main issues of limited water resources [15]. Water scarcity caused by deterioration in water quality should be considered together with physical water scarcity. Minimizing water pollution and / or maximizing the match between water quality requirement, supply and demand is critical to solving regional water scarcity problems with existing technologies [16]. It is important to observe local people's opinions and attitudes about the water shortages experienced. At this point, this study has been carried out in order to evaluate how people perceive these issues and to determine how aware they are of living issues.

## Research Objective

The general purpose of the survey is to measure the public's awareness of water issues. A total of 31 questions were asked in the survey. The following questions were seeking answers in the study;

- Age, sex, etc. demographic questions,
- Drinking water used, factors affecting quality and quality,
- Water issues,
- Payment policies
- Measures to be taken by state and other sectors and

## 2. Material and Method

Research is a descriptive work that reveals the current situation. Survey method was used to collect data in this study. A total of 363 people were interviewed according to the random

sampling method within the scope of the survey conducted using face-to-face interview techniques in Samsun province of the Middle Black Sea Region, Turkey. When the surveys were evaluated, 63 surveys were canceled due to mismarking and missing. The data obtained from the results of the data collection tool used in the research were evaluated on the computer by SPSS 22 (Statistical Packet for the Social Sciences) program.

The expert opinion was taken about scope and validity of the survey and the level of reliability was determined. The reliability coefficient was calculated for the reliability of the survey, and it was determined that the reliability  $\alpha = 0.731$  is a good value. In order to evaluate more accurate, the contribution of each issue in the factor is examined. It has been observed that the coefficients in the examined questions are almost the same and that the factor of removing any problem from the scale will not increase the reliability. It has been decided that the evaluation should be based on all the questions.

### 2.1 Reliability statistics

Cronbach's Alpha is a reliability analysis of the survey and indicates the consistency of the answers given to the survey, and this value was found to be 0.731 in the study. Cronbach's Alpha value is greater than 0.7 so it is suitable to evaluate the survey.

**a. Data sources:** A total of 363 people from all age groups residing in the district of Atakum in Samsun Province have occurred the study group.

**b. Data collection Tool:** The survey developed by researchers was used to evaluate the view of the people living in the Atakum district on the water issues, to have knowledge about what the issues in the water resources are, and to determine their views on the payment policies applied to the water. The survey consists of 31 questions and as two parts. In the first part, questions about the personal characteristics of the individual, in the second part, questions about the determination of the awareness of the individuals against water issues.

**c. Analysis of Data:** The data obtained from the results of the data collection tool used in the research were analyzed with the help of the expert using SPSS 22 program. Crosstabs were used to determine the extent to which gender, age, educational status, residential location and

occupational individual's attitudes towards water issues were affected. It has been determined how the awareness has changed in the view of water issues by evaluating identifiable questions and determinative questions.

### 3. Results

The data obtained by face-to-face surveys were used to examine ideas about water issues according to participants' opinions, using frequencies and percentages. The frequency and percentages of the responses given by participants to questions about water issues are shown in Table 1.

**Table 1.** Water Problems

Options	A serious problem		Not a serious problem		No idea	
	N	%	N	%	N	%
12- What are your thoughts about the problems facing the underground waters, lakes, rivers and coastal waters in your area?	214	71.3	49	16.3	37	12.3
13- What are your views on water quality problems?	219	73.0	52	17.3	29	9.7
14- What are your views on flood / overflow problems?	244	81.3	39	13.0	17	5.7
15- What is your opinion of drought / overuse of water?	246	82.0	34	11.3	20	6.7
16- What is your opinion about eutrophication (algae/moss growth)?	136	45.3	44	14.7	120	40.0
Total	N=300					

\*N: The number of people who evaluated the survey

#: The percentage of people who evaluated the survey

As it can be seen from the charts, 214 of the respondents (71.3%) said that the issues faced by underground waters, lakes, rivers and coastal waters in the region were serious issues, while 49 (16.3%) were not serious issues. In this study, 219 participants (73.0%) regard water quality issues and 244 (81.3%) flood/flood issues as a serious problem. Of the respondents, 246 (82.0%) regarded drought /water overuse as a serious problem and 34 (11.3%) stated that there was no problem. While 136 (45.3%) of the issues related to eutrophication (algae growth) were considered as a serious problem, 44 (14.7%) did not regard it as a problem and 120 declared that it was not an idea.

The frequency and percentages of the answers given by participants to the methods they use to solve water problems and use water more efficiently are shown in Table 2.

**Table 2.** There are different ways to solve water problems and use the water more effectively. In this context, in the last two years, can you tell which of the following applies?

Options	N	%
You have limited the amount of water you use (use water-saving products, shower instead of bath)	167	55.7
You have recovered the chemical such as household wastewater, batteries, paint, solvent etc.	37	12.3
You are avoiding the use of agricultural chemicals and fertilizers in your garden.	8	2.7
We have used environmentally friendly home chemistry.	22	7.3
You chose organic agricultural products.	17	5.7
You used the rain water.	3	1.0
You didn't make anything.	46	15.3
Total	N=300	

It was found that 167 (55.7%) of the respondents said that they saved water to solve water problems and use water more efficiently, 37 (12.3%) tried to recover water and chemicals, and 22 (7.3%) stated that they are paying attention to the environment-friendly chemistry they use.

The frequency and percentages of answers given by participants in the most effective way to approach water problems are shown in Table 3.

**Table 3.** Which of the following is the most effective way to approach water problems?

Options	N	%
To provide more information about the environmental consequences of water use	54	18.0
Increasing criminal sanctions	89	29.7
Fair price implementation	39	13.0
Providing financial support for effective water use (tax reductions, subsidies, etc.)	32	10.7
To improve implementation of existing water legislation	25	8.3
High tax on water polluting activities	27	9.0
Increase sanctions on water legislation	14	4.7
Others	4	1.3
No idea	16	5.3
Total	N=300	

In terms of the effective way to approach water problems, 89 (29.7%) respondents indicated that they would increase criminal sanctions, 54

(18.0%) provide more information and 39 (13.0%).

The frequency and percentages of the respondents' responses to the questions on water problems and the precautions that the government should take are shown in Table 4.

**Table 4.** The concept of water problems and the measures that the government should take.

Options	Yes		No	
	N	%	N	%
19- Do you think the state should take urgent measures to solve water problems?	284	94.7	16	5.3
20- Have you heard of the River Basin Management Plan?	131	43.7	169	56.3
21- Have you heard of eutrophication?	153	51.0	147	49.0
22- Have you heard of something called waste water word?	260	86.7	40	13.3
23- Have you heard of water stress?	195	65.0	105	35.0
24- Do you think the state should take urgent measures to prevent sea pollution?	266	88.7	34	11.3
Total	N=300			

As seen in the chart, 284 respondents (94.7%) stated that the government should take urgent additional measures to solve water problems, 169 (56.3%) did not hear the River Basin Management Plan, 153 (51.0%) were in eutrophication (86.7%) had heard of wastewater, 195 (65.0%) had heard of water restriction and 266 (88.7%) stated that the

state should take urgent additional measures in sea pollution.

The frequency and percentages of the respondents' questions on marine pollution are shown in Table 5.

**Table 5.** Do you think the sea is dirty in the region you live in?

Options	Yes		No		No Idea	
	N	%	N	%	N	%
25- Do you think the sea is dirty in the region you live in?	230	76.7	47	15.7	23	7.7
Total	N=300					

While 230 (76.7%) of the participants thought that the sea was dirty in the region they live in, 47 (15.7%) said it was clean.

The frequency and percentages of the answers the participants gave to the question about the pollution of the Black Sea are shown in Table 6.

**Table 6.** Do you think your pollution is a serious problem in the Black Sea?

Options	Yes		No		No Idea	
	N	%	N	%	N	%
26- Do you think your pollution is a serious problem in the Black Sea?	209	69.7	50	16.7	41	13.7
Total	N=300					

According to the evaluations, 209 of the respondents (69.7%) stated that there was a serious pollution problem in the Black Sea, and 50 (16.7%) stated that the pollution was not a serious problem.

#### 4. Discussion and Conclusion

When the results of this survey are evaluated, many of the participants see the issues facing underground waters, lakes, rivers and coastal waters as a serious issue. Also drought, over-water use, floods, and overflow are a serious problem for almost all of the participants. Restricting the amount of water used, using water-saving products, showering instead of bathing, recycling domestic wastewater, batteries and chemicals are the most common ways for participants to solve water issues and use water more efficiently. Very few have done nothing to solve water issues. According to participants, the most effective way to solve water issues is to increase criminal sanctions. In addition to this, participants were also informed about the environmental consequences of water use and that water prices were fairly priced for everyone. It is stated by almost all participants that the government urgently needs to take measures to prevent sea pollution and solve water issues. In addition, it has been said that most of the participants have not heard the concept of the River Basin Management Plan, although they have already heard the concepts of eutrophication, wastewater and water restrictions related to water issues. In this study is also mentioned by the majority of the participants that the sea in the area where they live is dirty and that pollution in the Black Sea is a serious problem.

#### 5. Suggestion

Although most of the participants were observed to be sensitive to environmental issues, more informational meetings, conferences and seminars should be held by both public institutions and NGOs (Civil society organizations) in order to spread environmental awareness to all citizens.

Education begins at an early age, therefore, school-age children should be trained by family and by teachers, to raise awareness and recycle

hazardous chemical substances, waste of water and garbage.

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