



## Environmental Citizenship Behaviors Scale, An Applied Study to community associations' beneficiaries in Ha'il

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Environmental issues become priorities in modern societies. Environmental citizenship behaviors are considered requirements for environment preservation; however, they undergo no comprehensive or applicable scale. Consequently, the current research aimed mainly at constructing a scale to measure environmental citizenship behaviors. The current research was applied to a regular random sample of 309 service beneficiaries of the Ha'il Association for Human Development and the Environment Association in Ha'il in The Kingdom of Saudi Arabia that seeks to preserve the environment and set the environmental vision and sustainable development among the main goals of Vision 2030, considering preserving the environment as a national, religious and humanitarian duty. Results revealed six dimensions interpreting the variation in environmental citizenship behaviors with a percentage of 74.75%. These dimensions included: environmental awareness, environmental participation, environmental responsibility, environmental justice, environmental culture and environmental policies. 40 items of the scale were loaded on these dimensions. The SPSS statistical program version (26) and exploratory factor analysis with rotating the axes; Varimax, were utilized to calculate results.

**Keywords:** Environmental- Citizenship- Behaviors

### INTRODUCTION

Sustainable development has become a global concern, as societies are increasingly interested in the impact of environmental problems on their productive capabilities and long-term success. Additionally, natural, technological and industrial changes have caused increasing harms that affect the environment on a large scale. They threaten to turn back the wheel of development, and they also entail social, economic and environmental dangers. (Paille, Boiral & Chen, 2013:p3552)

Actually, the process of preserving the environment is the responsibility of all institutions and society members, as the treatment of environmental problems can not to be undertaken by the state only, but citizens bear a large share, in this regard. To respond to the growing global environmental challenges, The United Nations Organization has launched one of the largest consultation programs within its history. The program has resulted in an agenda that includes 11 sustainable development goals and focused on international development in three fields, namely; economic, social and environmental.

(Report of the United Nations Conference on Human Settlements, 2005)

The concept of environmental citizenship focuses on the involvement of citizens in common issues as well as future challenges and growing problems related to the environmental system and maintaining environmental sustainability. This is because the environment and the ecosystem are among the most important issues of international laws and concern the whole world, and if measures are not taken to preserve them, international safety will be threatened (Amroush, 2014: p. 90).

Environmental citizenship aims at raising the citizens' awareness of and contribution to mitigating environmental problems, as well as activating their role in environmental censorship and decision-making. Therefore, countries of the world and many organizations and bodies call for establishing environmental citizenship in order to change human attitudes towards the environment into positive ones and preserve the rights and resources of future generations. (Salleh, Razali, Ibrahim, Zain & Mansor, 2020: pp 306- 317). Environmental citizenship instills values, principles and ideals among members of society,

whether old or young, to be able to participate effectively and actively in all environmental issues and problems, thus the concept of environmental citizenship develops as an existential necessity for human survival and is not just a slogan. (Al-Harbi, 2016, p.6)

Therefore, environmental citizenship greatly affects economic, social, cultural and political development is a strategic goal for state policies, as well as a target for the programs of many international and local organizations that try to achieve environmental security and preserve the environment. (Al-Saadi, 2014, p. 9).

Aba Hussein (2006) indicated that spreading the culture of environmental citizenship is the responsibility of both the state and civil society and showed the role of each of the governments or civil society associations and the citizen in building this concept as well as their responsibility in setting plans for the development of environmental citizenship concepts consisting of goals, programs and indicators for their actual evaluation.

Anne (2006) indicated a deficiency in rooting the behaviors and values of environmental citizenship, and recommended achieving environmental justice that protects the right of future generations to environmental resources, encouraging individuals, communities, and organizations to think about environmental rights, distributing responsibilities of every citizens living on planet Earth, balancing environmental rights and duties; in a way that solves environmental problems and arouses the interest of all individuals.

Bourezk (2009) identified the role of secondary school as a governmental organization in spreading environmental awareness in the state of Tebessa in Algeria. Results showed that the school administration contributed to spreading the culture of environmental awareness to a weak degree, while the teachers and the school curricula contributed to that to a high degree.

Tracing the same point, Abdel-Masih et. al (2018) investigated the effectiveness of a competition program on developing the environmental citizenship dimensions among young people in youth centers. The competition program included a number of environmental issues such as types of environmental pollution, resource management, sustainable development, climate change, sound management and biodiversity. Results showed the effectiveness of the competition program on developing the dimensions of environmental responsibility, collective action and environmental justice.

In addition, Meerah, Halim and Nadeson (2010) indicated that the level of environmental awareness and attitudes among students in Malaysia ranges between low and medium, while the level of skills and participation is medium. The study recommended the importance of awareness of environmental citizenship issues both inside and outside the educational institution.

The Preparatory Forum for the Johannesburg Summit on Sustainable Development for Non-Governmental Organizations (2002), held in cooperation with the United

Nations Environment Program, pointed the importance of environmental citizenship in protecting the local and global environment and its natural resources and preserving them from pollution, as well as its ability to increase citizens' awareness of the scarcity of natural resources and their limited ability to renew.

The role of organizations, especially community organizations, is not only to provide services to society members, but also to precede further to inculcate positive behaviors towards the environment, belonging and human values in dealing with the environment and making decisions to address critical environmental problems and issues with awareness and consciousness, which are translated into national behavior or what is known as environmental citizenship (Boiral & Paillé, 2012: p 431).

Community associations, with their multiple areas of interest, offer a major role in the development and updating of all the world societies as an expression of independent and organized initiatives on the part of various groups from different social strata. Community associations as civil society organizations seek to achieve environment preservation through the participation of various groups of society. (Al-Sabah, 2000, p. 24). Community associations focus on urban renewal, try to improve conditions for specific neighboring communities, and provide educational and cultural programs (Tongrem, et al. 2002. p.58).

Community associations are required to spread the culture of environmental citizenship in society, based on individuals' responsibilities towards the environment in which they live and according to a set of duties that correspond to a set of environmental problems that societies suffer from due to lack of knowledge and awareness of environmental dangers and their social, health, economic and environmental impact on the lives of local, national and global communities. The real response to these problems, resulting from the failure to preserve the environment, depends primarily on the existence of real and documented measurement tools, which can be relied upon to diagnose the levels of environmental citizenship among community members who benefit from the services of community organizations in general and community associations in particular, and to identify defects of awareness programs that ensure environmental rights and duties of preserving the environment and participating in environmental decision-making processes. Consequently, the current research sought to construct a reliable scale of environmental citizenship behaviors to measure the availability of environmental citizenship behaviors among the beneficiaries of the services of community associations in Ha'il.

The current research aimed at constructing a measure of environmental citizenship behaviors among the beneficiaries of community association's services in the city of Ha'il.

**Concepts:****Scale Concept:**

Abdel-Raouf and Al-Masry (2017) define a scale as: a means to determine the level of an individual's characteristic through specific tests (Abdul-Raouf, Al-Masry, 2017, p. 23)

Abdel-Moati (1985), also, defines it as measuring and evaluating the characteristics of something and turning them into amounts, numbers, digits, ranks, weights of the qualities related to the nature of the measured thing.

The scale can be defined operationally as: identifying the dimensions of environmental citizenship behavior among the beneficiaries of community associations services, defining evaluative criteria for these dimensions, interpreting these qualitative dimensions into scores for each dimension and its items.

**The Concept of Environmental Citizenship:**

Join (2007) defines it as an extension of the principles of democracy that provides people with the best opportunities to solve environmental problems that lead to the deterioration of life in various societies and work to change the attitudes of society members into better environmental behaviors.

Oder (2020), also, sees environmental citizenship as: "a personal commitment to acquire additional knowledge about the environment and take responsible environmental actions by individuals and governments....., the concept of environmental citizenship can be summarized as a care commitment for the homeland" (Odeh, 2020, p. 897)

Environmental citizenship is defined operationally as the degree of environmental culture, awareness of environmental rights and duties, environmental responsibility and responsible environmental behaviors among beneficiaries of community associations in Hai'l.

**Environmental Citizenship Goals:**

- 1- Providing citizens with skills and information that contribute to environmental reform.
- 2- Improving environmental behavior in public life.
- 3- Avoiding environmental damages before occurrence and demand proof that there are no long-term damages to the proposed environmental activities
- 4- Raising the level of community members' general environmental knowledge to motivate them to participate in decision-making, and develop solutions related to environmental and development affairs (Arabia, Hamid, 2021, p. 22)

**Dimensions of Environmental Citizenship**

Stern (2011) identified four dimensions of environmental citizenship

- 1- Environmental support and activity that refer to individuals' support of for the environment
- 2- Volunteering which refers to the participation of

individuals in activities that protect the environment

3- Environmental culture

4- Political citizenship in the field of environment.

In addition, Hawthorne and Alabaster, (1999) identified that environmental citizenship has three dimensions:

- 1- Personal responsibility.
- 2- Environmental justice.
- 3- Teamwork.

Al-Ajami and Al-Dhafiri(2016) stated that environmental citizenship has nine overlapping dimensions which are Environmental information, environmental concern, environmental awareness, personal variables, demographic variables, environmental education, environmental knowledge, environment understanding, responsible environmental behavior

The dimensions of environmental citizenship can also be divided into:

**a- Environmental Responsibility:**

Environmental responsibility is the individual's ability to bear environmental responsibilities towards an environment in which he/ she lives out of conscience and cooperation with others in caring for the environment and preserving it from dangers that threaten to deplete its natural resources and participating in achieving its sustainable and ecological development. The concept of environmental responsibility is, also, defined as the individual's own responsibility towards the environment (Abdul Mawgoud, Bayoumi, 2014: p. 40).

**b- Environmental Rights & Duties**

Environmental citizenship seeks to assert environmental rights and duties of conserving and planning for the use of natural resources. Environmental citizenship involves a personal commitment to learn more about the environment, as well as, holding responsible actions and performing duties in order to protect the environment. Most of the environmental problems are related to wrong behavioral patterns of man towards the environment and its preservation. Imposing laws and regulations and applying penalties root and increase awareness of environmental rights and duties. (Al-Ajami, Al-Zafiri, Al-Shatti, 2018, p. 465)

**C- Environmental Behaviors:**

The environmental commitment of a citizen to follow what is right or avoid what is wrong in dealings with the environment without the presence of external censorship over his/ her behavior. Environmental behavior the consolidation of the values of participation in protecting and maintaining the environment so that positive environmental morals become an integral part of society culture (Jafal, Belkhiri, 2020, p. 106).

**d- Environmental Culture.**

Environmental culture is the awareness based on feeling and knowledge, which helps to make certain

decisions towards various environmental issues. It, also, indicates the level of the community members familiarity with an appropriate amount of environmental information, and the difference shown by these members in their attitudes towards various environmental matters. (Al Farhan, 2019, p. 294)

### Concept of Community Associations

Al-Sukari (2015) defined a community association as every non-profitable voluntary group with a continuous organization, consisting of individuals, legal persons, or both together whose number is not less than 10. The community association has an organizational identity and a legal personality, and is established by the desire and preference of its members and has aims and activities that support the public interest (Al-Sukari, 2015, p. 145)

Abdel-Latif (2010) defined community associations as units established by members of the local community and do not seek profit, but aim at developing resources, improving society and empowering its members (Abdul-Latif, 2010, p. 2)

Al Hermel (2020) referred to community associations as:

- A- Non-profit social enterprises
- b- Aiming at satisfying the basic requests of the needy and the poor.
- C- Working to achieve community development.
- d- Aiming at cooperation between governmental and private efforts

## MATERIALS AND METHODS

### Design

: as ample survey research.

### Place Field:

The current research was conducted in the city of Ha'il

### Human Field:

The research was applied to the beneficiaries of community associations in the city of Ha'il

### Time Field:

the data collection period lasted from (July 2022 - August 2022)

### Sample

Ha'il Association for Human Development and the Environment Association in Hail were chosen to represent the community associations, then data was collected from 309 individuals who frequently visit the two associations, after sending the link of the questionnaire to the beneficiaries of the associations in a regular random way through the mobile numbers.

## Scale Preparation

### The First Stage:

After reviewing previous literature, the items of the scale were formulated in the light of:

- 1- Determining the subject of the scale and ensuring its measurability according to a set of criteria related to citizenship behavior in general and environmental citizenship in particular.
- 2- Analyzing the concept of environmental citizenship into its dimensions that can represent the scope of the behavior to be measured
- 3- Formulating the necessary statements for the scale.
- 4- Items that got an agreement of 80% or more from the views of the jurors were kept while those that got less were excluded.
- 5- To verify the clarity and understanding of the items of the scale and its instructions for the target group, the scale was applied in its initial form to a sample consisting of (10) individuals who were beneficiaries of the community associations' services and the scale items and instructions were proved to be clear.
- 6- The scale is in its final form (51 items) were graded according to the five-point Likert scale where (I strongly agree = 5, I agree = 4, I somewhat agree = 3, I disagree = 2, I strongly disagree = 1).

### The Second Stage:

In this stage the exploratory factor analysis was conducted, using the KMO and Bartlett's test, to measure the loading of the items that represent the scale on the different dimensions.

### Item validity and Reliability:

To verify the logical validity of the items, they were submitted to a number of jurors of experienced university professors who expressed their view on the scale items, in terms of linguistic formulation, clarity of items, and adding, modifying or deleting.

### Statistical Analysis

The IBM SPSS (V.26) statistical analysis program was used, where frequencies and percentages were calculated to describe the study sample, then exploratory factor analysis (EFA) was utilized to determine the primary factors of the scale and the number of items used. (Hair et al. 2014)

After completion of the exploratory factor analysis, confidence coefficients were calculated using Cronbach's alpha. If the value is between 0.7 and 0.8, then the confidence coefficient of the scale is good, and if it is between 0.8-0.9, then it is very good.



**Table 1: Description of the Research Sample**

Description	No.	%
<b>1- Gender</b>		
Males	246	79.6%
Females	63	20.4%
Total	309	100%
<b>2- Name of ssociation</b>		
Environment in Ha'il	156	51.5%
Ha'il for Human Development	150	48.5%
Total	309	100%
<b>3- Work</b>		
Work	258	83.5
Not work	51	16.5
Total	309	100%
<b>4- Educational level</b>		
Secondary	9	2.9
Bachelor	288	93.2
Post graduate	12	3.9
Total	309	100%

From the data of the table, it is clear that the number of beneficiaries from the Environment Society in Ha'il was almost equal to the number of beneficiaries from the Ha'il Society for Human Development, and that more than two-thirds of the sample were males and most of them were workers. As for education, most of the sample held a bachelor's degree, while 2.9%. Graduated from high school and 3.9% were postgraduate students.

## RESULTS AND DISCUSSION

### First: Exploratory Factor Analysis

The exploratory factor analysis measured the sample's responses with the principle-Component Method, then there was an orthogonal rotation of the axes using Varimax method for all the phrases that made up the scale, in order to provide a better interpretation of the factorial structure extracted before rotation. The analysis was limited to six exploratory dimensions, whether the subscale statements were loaded around these dimensions, the Eigen value was used according to the Kaiser criterion, so that the value of the Eigenvalue of the factor is greater than one, and after reference to (0.5) minimum level of significance of loading of the statement to the dimensions, according to Guilford criterion, Table (2).

Validity of the data was estimated to conduct the factorial analysis by examining the correlation matrix, and the coefficient of (Kaiser-Meyer-Olkin: KMO), which was amounted to (0.832), which was higher than (0.60) (Hair et al.214) and indicated the appropriateness of the strength of the correlation between the items of the scale to perform the factor analysis.

According to the above, the researchers utilized exploratory factor analysis of the responses of the study

sample using the principle-Component Method and then orthogonal rotation using the Varimax method for all the statements that made up the scale, with the aim of providing a better level of interpretation of the extracted factorial construction. Before rotation, the analysis was determined in six dimensions to detect whether the sub-scale statements were loaded on these dimensions and the latent root (EigenValue) was used according to the Kaiser criterion.

**Table 2: KMO and Bartlett's Test**

<b>Kaiser-Meyer-Olkin Measure of Sampling Adequacy.</b>		.832
Bartlett's Test of Sphericity	Approx. Chi-Square	14462.726
	Df	595
	Sig.	.000

The number of dimensions that should be relied upon for loading the items were determined, wherein the items that were not loaded on any dimension were deleted. In the case that the item was loaded to more than one dimension, it was kept to the dimension whose loading coefficient was greater than the other. The initial analysis was conducted for 51 items, and 11 items were deleted successively. The variables (x9-x2- x35-x39-x34) were deleted because they were not loaded to any dimension, where the loading value was less than 0.5, and the analysis was repeated again. Results showed that items loaded to some dimensions were less than 3, so these items (x11-x1 – x42-x24-x20-x18) were deleted and the analysis was, also, repeated for the third time. Results showed the loading of 40 items to 6 dimensions, as shown in Table (3) and Table (4).

Table (3) shows the interpretation of the variation in environmental citizenship behaviors for each of the six dimensions; in addition to the interpretation of the variation in environmental citizenship behaviors for the total combined six dimensions, where the rate of interpretation of the variation was 74.7%, a relatively high percentage. It is clear from Table No. (4) that the items were loaded on the dimensions.

Table (4) shows items loaded on the six dimensions. The first dimension was environmental awareness loaded with 14 items on the scale, the second dimension was environmental participation loaded with 7 items on the scale, the third dimension was environmental responsibility loaded with 6 items on the scale, the fourth dimension was environmental justice loaded with 5 items on the scale, the fifth dimension is environmental culture loaded with 5 items on the scale and the sixth dimension is environmental policies loaded with 3 items on the scale.

Table 3: Total Variance

component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	14.101	34.392	34.392	14.101	34.392	34.392	11.054	26.960	26.960
2	8.279	20.192	54.584	8.279	20.192	54.584	5.199	12.680	39.640
3	2.957	7.212	61.796	2.957	7.212	61.796	4.533	11.056	50.696
4	2.295	5.598	67.394	2.295	5.598	67.394	4.281	10.443	61.139
5	1.854	4.521	71.915	1.854	4.521	71.915	3.778	9.215	70.354
6	1.163	2.836	74.751	1.163	2.836	74.751	1.803	4.398	74.751
7	.922	2.248	76.999						
8	.878	2.141	79.140						
9	.799	1.949	81.089						
10	.698	1.702	82.791						
11	.647	1.577	84.369						
12	.618	1.507	85.875						
13	.552	1.347	87.222						
14	.497	1.213	88.436						
15	.460	1.123	89.559						
16	.443	1.080	90.639						
17	.399	.974	91.612						
18	.355	.866	92.478						
19	.348	.850	93.328						
20	.335	.816	94.144						
21	.310	.757	94.901						
22	.259	.632	95.533						
23	.250	.609	96.142						
24	.221	.538	96.680						
25	.216	.527	97.207						
26	.156	.380	97.587						
27	.134	.326	97.913						
28	.131	.319	98.232						
29	.117	.285	98.517						
30	.109	.265	98.782						
31	.094	.230	99.012						
32	.086	.210	99.222						
33	.080	.195	99.417						
34	.068	.166	99.583						
35	.049	.119	99.702						
36	.040	.096	99.798						
37	.032	.078	99.877						
38	.022	.053	99.930						
39	.015	.037	99.967						
40	.004	.009	100.000						
Extraction Method: Principal Component Analysis.									

Table 4: Rotated Component Matrix<sup>a</sup>

Items	1	2	3	4	5	6
I have the skill to develop solutions to various environmental problems.	.943					
Every individual has the right to a safe and healthy work environment.	.935					
I have the right to enjoy the highest standard of health in an environment free from environmental harm.	.934					
Environmental pollutants are related to chronic diseases in humans.	.926					
I am aware of the services provided by the Ministry of Environment.	.885					
Inclusion of environmental education in schools	.878					
I know safety and environmental health procedures.	.869					
Each individual should identify the demands and needs of the environment in which he/ she lives.	.860					
I am convinced that everyone has the right not to be exposed to activities that negatively affect their environment.	.851					
I am aware of the various environmental problems that a society suffers from.	.837					
I have knowledge and awareness of the causes of environmental problems.	.813					
The state should set a number of laws to protect and preserve the environment.	.723					
I have knowledge of various environmental concepts.	.718					
I have the right to be educated in the field of human environmental rights.	.644					
I volunteer in works that deal with environmental issues in my community.		.923				
I offer effective suggestions on ways to protect the environment.		.893				
I get involved in environmental improvement activities.		.797				
I contribute to raising awareness of the importance of natural reserves and the need to protect animals from extinction.		.771				
I voluntarily implement environmental protection measures in my daily work activities.		.739				
I contribute to identifying the environmental demands and needs of my community.		.677				
I encourage others to follow behaviors that lead to environmental protection.		.545				
I have the right to learn about global environmental protection experiences.			.837			
I think it is necessary to participate in activities related to the protection of the environment from pollution.			.815			
I communicate with the concerned authorities to submit reports regarding environmental problems in my community.			.773			
I follow the accounts of some activist in the environmental field.			.724			
I take some of my time to participate in natural resource conservation work in my community			.723			
I have the right to be informed of the environmental impact assessments of projects being carried out in my environment.			.703			
All conditions of environmental safety should be met in our society.				.826		

I am convinced of the need for community members to take responsibility for protecting the environment				.820		
Every individual should have the opportunity to contribute to reducing environmental problems.				.785		
The rich can be given some advantages in return for contributing to solving environmental problems				.783		
It is necessary to develop education in a way that contributes to solving environmental problems.				.734		
I participate in courses or seminars on the environment					.815	
I Know the dangers of chemical resources to the environment.					.796	
I know that global warming is one of the products of environmental pollution.					.780	
Protecting and preserving the environment from pollution is an obligation and a moral duty.					.757	
I have knowledge of the causes of global warming					.605	
The validity of any societal behavior requires that it contribute to protecting the environment at the local and regional levels.						.704
I would prefer my area to have all the social services.				.		.650
Every generation has the right to enjoy the country's wealth without limit.						.562

**Table5: Scale Reliability Coefficients**

Dimension	Environmental Awareness	Environmental Participation	Environmental Responsibility	Environmental Justice	Environmental Culture	Environmental Policies
<b>Statements No.</b>	14	7	6	5	5	3
<b>Reliability Coefficient</b>	0.977	0.915	0.898	0.908	0.877	0.875

Table (5) shows that the reliability coefficients for the six dimensions of the scale were high, which indicates the reliability and suitability of the scale.

**Table (6): The Correlation Matrix between the Scale Dimensions & the Overall scale score**

Dimension	Environmental Awareness	Environmental Participation	Environmental Responsibility	Environmental Justice	Environmental Culture	Environmental Policies
<b>Correlation coefficient of the total score of the scale</b>	0.841**	0.571**	0.620**	0.558**	0.613**	0.428**

\*\* means that the correlation coefficient is significant at the level of 0.01

The previous table indicates the significance of the correlation coefficients between the dimensions of the scale and the total score of the scale, which in turn indicates the internal consistency of the scale.



## CONCLUSION

Six dimensions for measuring environmental citizenship behaviors were observed, some of them were stated in previous literature, however no one scale included the six combined dimensions of measurement. Hawthorne and Alabaster (1999) referred to environmental awareness as one of the dimensions of environmental citizenship behavior, while Stern (2011) indicated that environmental participation is another dimension of environmental citizenship behaviors.

Findings of the current research agreed to some extent with previous research, but were unique in creating a one scale that included most of the environmental dimensions. Therefore, the current research is a premise for the Scale application, and testing through confirmatory global analysis.

## CONFLICT OF INTEREST

The authors declared that present study was performed in absence of any conflict of interest.

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## AUTHOR CONTRIBUTIONS

NMGI and MKKS designed the study methodology and wrote the theoretical framework and previous studies. IEAH and AMAE collected the data, performed the data statistical analysis. All authors cowrote a discussion of the results. All authors read and approved the final version.

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