

## **Utilization of regulatory and administrative tools in the planning, management and protection of urban greenery: the views of the residents of the Municipality of Thessaloniki**

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**ABSTRACT:** *Urban greenery improves the conditions and the quality of life of city residents and leads to the sustainable development of cities through the interaction of a number of factors. Environmental policy aims at preserving, protecting and improving the environment, as well as the sustainable management of natural resources. Policy makers utilize tools of direct intervention and/or mild intervention. The objective of the study is to investigate the views of residents of the Municipality of Thessaloniki in Greece on issues relating to planning, management and protection of urban green areas, in order to formulate appropriate policies, to draw useful conclusions and furthermore, to find possible relationships and correlations between the research variables, by using appropriate statistical analysis methods. Data was collected through questionnaires.*

**KEY WORD:** *Urban greenery, environmental policy, questionnaire, Thessaloniki*

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### **I. INTRODUCTION**

Urban green leads to the sustainable development of cities through the interaction of a number of factors, namely the social context, the management objectives, the means, the management's results and the various information (Dwyer et al, 2003). The use of parks and trees in towns, in order to groom them and to improve the living conditions of their inhabitants, is now the primary concern of city planners (Grey and Deneke, 1992). Policy makers should utilize tools of direct intervention and/or mild intervention in order to protect urban greenery (Vassios, 2020). Environmental policy must be compatible with existing socio-economic policies and research in the fields of conservation, protection and improvement of the environment (Kula, 1994). Policies for the management and protection of green and free spaces should focus on legislation, as well as giving incentives to citizens (Bengston et al., 2003). Urban green spaces management faces the challenge of spreading urban areas and preserving green spaces. Therefore, better management requires the improvement of relevant legislation (Carbone et al., 2015). In general, all stakeholders should be involved and exploit the various legal and institutional tools for urban planning and protection of green areas (Roberts et al., 2017).

### **II. RESEARCH OBJECTIVES**

The objective of the study is to investigate the views of residents of the Municipality of Thessaloniki in Greece on issues relating to planning, management and protection of urban green areas, in order to formulate appropriate policies, to draw useful conclusions and furthermore, to find possible relationships and correlations between the research variables, by using appropriate statistical analysis methods. The present study is part of a wider research.

### **III. RESEARCH METHODOLOGY AND DATA ANALYSIS**

The research instrument that used for the data collection was a self-completed questionnaire, which is the main tool of research in the social sciences (Cohen and Manion, 1997). A relevant bibliography was studied for the development and validation of the questionnaire (Gillham, 2007). The questionnaire contains 12 questions measured on a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree) (Babbie, 2011). The questions refer to regulatory and administrative tools that can be used in the planning, management and protection of the urban green. Furthermore, there are questions related to demographic data of the participants.

The study population included residents of the Municipality of Thessaloniki. The questionnaires were sent by post (Cohen et al, 2005). In total, they participated 384 residents. The research was completed in January 2018.

Data handling and analyses were conducted using the IBM SPSS Statistics 21. More specifically, statistical analysis included:

*Descriptive statistics.* Descriptive statistics deal with methods of organizing and presenting data (Anderson & Finn, 1996).

*Reliability.* The reliability of a questionnaire relates to the consistency with which it measures the concept that it claims to measure. One of the most common reliability coefficients is Cronbach’s alpha (Bland & Altman, 2002).

*Validity.* The term validity refers to whether a questionnaire measures what it is intended to measure and how well it measures (Babbie, 2011).

*Correlations.* Correlation estimates the degree or the relationship between two or more variables (Healey, 2015). When one or all of the variables are measured on an ordinal scale, Spearman correlation coefficient is used instead of Pearson correlation coefficient (Foster et al, 2006).

*Mann-Whitney.* The non-parametric Mann-Whitney test is used when the groups being tested are two and independent of one another and do not follow the normal distribution (Dawson and Trapp, 2004).

*Kruskal-Wallis.* The non-parametric Kruskal-Wallis test is used when the groups being tested are more than two and independent of one another and do not follow the normal distribution (Dawson and Trapp, 2004).

#### IV. FINDINGS

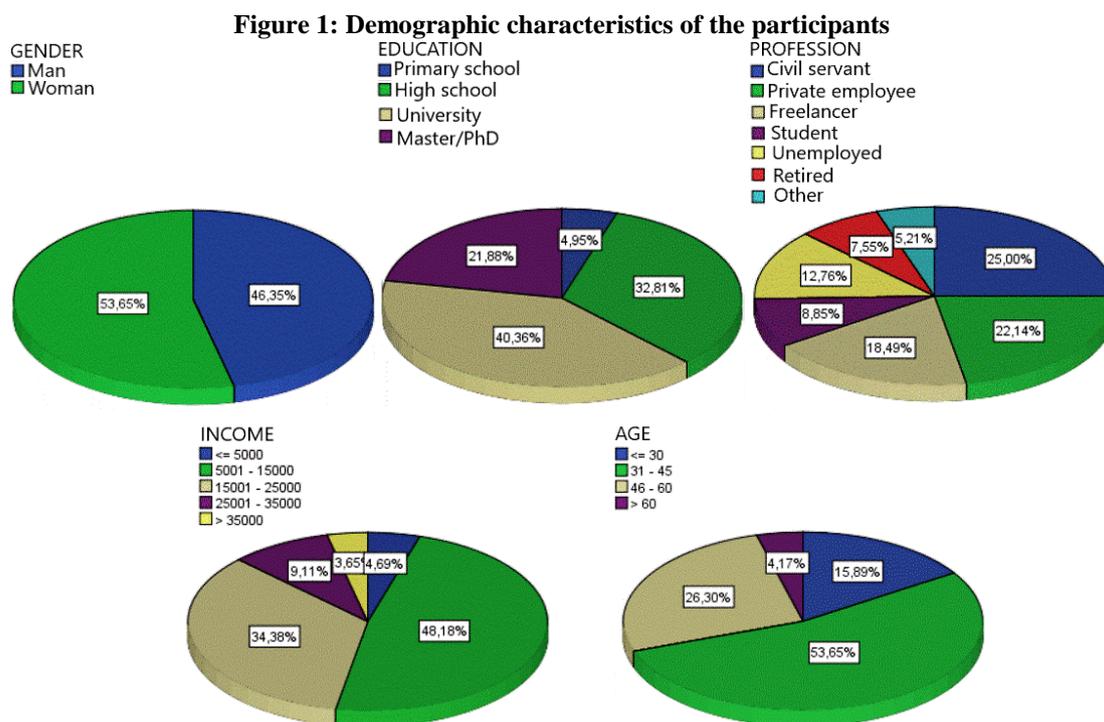
##### Descriptive statistics:

The respondents’ answers are presented in Table 1.

**Table 1: Presentation of responses**

Variable	Strongly disagree	Disagree	No opinion	Agree	Strongly agree
	Percentage (%)				
Stricter arrangements for licensing public space to those who concerned	0.79	3.13	10.18	45.17	40.73
Stricter criminal penalties and fines for those who vandalize outdoor public areas and green areas	0.78	2.08	3.65	39.58	53.91
Smaller fines for easier enforcement by competent auditors and faster payoff	11.72	27.86	28.13	23.18	9.11
Red-handed caught for those who vandalize outdoor public areas and green areas	2.09	6.51	11.46	39.58	40.36
Adoption of the institution of Environmental Prosecutor dealing with issues related to the protection and management of urban/suburban green areas and public spaces in direct cooperation with the relevant municipal Services	1.56	6.25	14.32	48.44	29.43
Design, management and protection of free and green spaces exclusively by private companies, with municipal services merely supervising	14.84	32.55	22.92	16.93	12.76
Establishing simplified and straightforward procedures for the acquisition, designation and consolidation of new green spaces	0.27	2.60	14.84	54.69	27.60
Adoption of a single law that will replace older laws, regulations, etc. on the protection and general management of urban outdoor spaces and greenery	0.00	1.82	11.72	51.82	34.64
Obligation of building developers to construct green facilities at the entrances and in the uncovered areas of apartment buildings	0.26	2.86	9.90	50.52	39.46
Revision of the legislation related to the planning, management and protection of the urban environment, adapting it to modern environmental needs and requirements and to international standards	0.27	2.34	8.59	50.00	38.80
Staffing of audit Services with agronomists/foresters to provide expertise in green protection issues	0.26	3.39	7.29	45.05	44.01
Further partnership between the private and public sectors in matters of planning, management and protection of open spaces and green spaces	1.56	5.21	10.68	42.45	40.10

The demographic characteristics of the participants are depicted in Figure 1.



**Reliability analysis:**

The entire questionnaire has a Cronbach’s alpha coefficient of 0.616, which is acceptable.

**Construct validity:**

Validation was performed by using the Factor Analysis. A 3-dimensional solution (3 factors), gave characteristic values of 2.775, 1.491 and 1.399 respectively, which state that 23.12% of the explained variance is explained by the first factor, 12.42% by the second and 11.66% by the third, accounting for 47.20% of the total explained variance. The loads of the factors are presented in Table 2. The first factor can be called "Changes and simplifications in legislation", the second "Stricter penalties and fines for offenders" and the third "Active participation and collaboration of private companies". For the sake of brevity and ease of processing, the three factors were given the abbreviations F1, F2 and F33 respectively and will henceforth be used in the text.

**Table 2: Principal components’ loads**

Variable	Component		
	1	2	3
Stricter arrangements for licensing public space to those who concerned		0.607	
Stricter criminal penalties and fines for those who vandalize outdoor public areas and green areas		0.784	
Smaller fines for easier enforcement by competent auditors and faster payoff		-0.303	
Red-handed caught for those who vandalize outdoor public areas and green areas		0.671	
Adoption of the institution of Environmental Prosecutor dealing with issues related to the protection and management of urban/suburban green areas and public spaces in direct cooperation with the relevant municipal Services		0.349	
Design, management and protection of free and green spaces exclusively by private companies, with municipal services merely supervising			0.825
Establishing simplified and straightforward procedures for the acquisition, designation and consolidation of new green spaces	0.647		
Adoption of a single law that will replace older laws, regulations, etc. on the protection and general management of urban outdoor spaces and greenery	0.787		

Obligation of building developers to construct green facilities at the entrances and in the uncovered areas of apartment buildings	0.733		
Revision of the legislation related to the planning, management and protection of the urban environment, adapting it to modern environmental needs and requirements and to international standards	0.684		
Staffing of audit Services with agronomists/foresters to provide expertise in green protection issues	0.252		
Further partnership between the private and public sectors in matters of planning, management and protection of open spaces and green spaces			0.720

**Correlations:**

The correlation between the 3 factors and the variables "Education", "Age" and "Income", was investigated through the Spearman correlation coefficient. The variable "Age" shows little negative correlation (-0.226) and statistically significant differences at the significance level of 0.01 with the variable "Education", a little positive correlation (0.116) and statistically significant differences at the significance level of 0.05 with the F2 variable and a little positive correlation (0.230) and statistically significant differences at the significance level of 0.01 with the "Income" variable. The variable "Education" shows little negative correlation (-0.109) and statistically significant differences at the significance level of 0.05 with the F3 variable. In essence, younger ones who are mainly higher education graduates with lower income seem to be in agreement with the enforcement stricter penalties and fines to those who vandalize urban greenery. Furthermore, the participants with lower education seem to prefer partnerships with private companies. However, the correlations are too weak to draw safe conclusions.

**Mann-Whitney:**

With Mann-Whitney test, it was investigated whether there is a statistically significant difference (at significance level 0.05) between the values of the 3 factors and the variable "Gender". There were found no statistically significant differences.

**Kruskal-Wallis:**

With Kruskal-Wallis test, it was investigated whether there is a statistically significant difference (at significance level 0.05) between the values of the 3 factors and the variable "Profession". There were found statistically significant differences between F3 and the variable "Profession" ( $p < 0.001$ ). More specifically, public servants, students and retired, show low mean rank (123.55, 153.57 and 160.09 respectively). On the other hand, unemployed, freelancers and private employees show high mean rank (194.04, 204.68 and 241.67 respectively). Consequently, those who show higher mean rank, prefer to a greater extend partnerships with private companies.

**V. DISCUSSION**

According to the results of the study, it appears that:

- Residents want the general legal and regulatory framework to be changed, revised, codified and modernized.
- There are quite a few residents (mostly freelancers and private employees) who would prefer the private sector to be solely involved, with the public sector simply overseeing, apparently seeing this as a very good employment opportunity. On the contrary, public servants do not agree, possibly fearing comparisons, but also a possible loss of their jobs.
- Public servants and retirees obviously from their experience so far (the public servants as implementers of state policies in the context of their official capacity and the retirees due to their greater experience), wish to exercise a tougher state policy with the application of direct and strict regulatory means, as well as students possibly because of "activist" pro-environmental views that generally characterizes them as a group. Freelancers disagree with the above proposal, perhaps also because of their more general reaction to any strict intervention by the state, which they consider to be, for the most part, not particularly friendly towards them.
- Younger respondents who are mainly higher education graduates with lower income seem to be in agreement with the enforcement stricter penalties and fines to those who vandalize urban greenery. These groups wish the state to utilize regulatory tools of direct intervention for the exercise of policy for the protection urban greenery because obviously believe that the impunity does not contribute to achieve the appropriate results.

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