

# THE PERCEPTION REGARDING THE URBAN ENVIRONMENT IN ROMANIAN CITIES

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## Abstract

The present paper brings forth an analysis of the urban inhabitants' perception regarding the quality of environmental factors. The research is based on a secondary analysis using data provided by the Flash Eurobarometer 277: Urban Audit Perception Survey. The main conclusion of this paper is centered on the fact that Romanian urban inhabitants give little attention to environmental factors, their priorities targeting other areas like work and health connected issues. A greater amount of attention to environmental factors is given by the more educated population which is more aware of the environmental factors' importance for their daily life.

The practical conclusion of the study consists in the necessity to make the whole population aware of the environmental problems, in view of adopting an appropriate behavior and attitudes regarding urban surroundings. The public administration has to play a key role in this respect, thus the paper tries to underline the possible outcomes that this situation can have on the decisions made by local authorities.

**Keywords:** urban environment, environmental factors, consumer's perception, quality of life, public administration.

## 1. Introduction

Our paper investigates an ever increasing problem among many of the world's inhabitants, especially those living in urban areas, as cities become ever more crowded, polluted and dangerous for our health, namely the quality of environmental factors (such as water, air, green spaces, cleanliness, climate and noise level). The starting question for the research was: 'To what degree are the inhabitants of Romanian cities aware of the importance of natural environment quality for their own welfare and for their lives in general?'

A similar question is answered by Vemuri and Costanza (2006); using data from the 1998 United Nations Human Development Report for 171 countries, they reached the following conclusions:

'[...] the significant impact that natural capital has on life satisfaction. While the positive effects of the natural environment on stress recovery and health are well-established, fewer studies have looked at the role of the natural environment in people's assessment of life satisfaction. This analysis suggests that people do consider their natural environmental surroundings when evaluating their life satisfaction and therefore, the natural environment should routinely be included in studies of life satisfaction' (Vemuri and Costanza, 2006, pp. 131-132).

The quality of life should be considered in all its complexity and not reduced to the comfort and satisfaction determined by economic and technologic development, income level and material goods, but by ecosystems, biodiversity, the quality of natural landscapes, peaceful interpersonal relationships, cultural diversity, appropriate education, everything that a better life can offer.

The interest for environmental quality has increased rapidly in industrialized countries starting with the 1960s, mainly for two reasons: on one hand 'the awareness of the devastating effects of economic growth on the environment' and on the other hand 'the estimate that economic prosperity does not assure by itself human prosperity' (Zamfir, 1993, p. 79). The idea that the increase of collective welfare is the attribute of economic growth is the target of multiple criticisms. In this context, the quality of life can have the role of 'corrector of economic growth' as one can consider even that economic growth contributes too little to human welfare growth (Di Tella and MacCulloch, 2006).

Without a clean, healthy, beautiful environment, life quality lacks some of its most important dimensions, and the human body faces an increased incidence of respiratory, circulatory and nervous system diseases (Doroftei *et al.*, 2004; Niciu, de Saeger and Zurini, 2003; Stern *et al.*, 1997). Furthermore, among the priorities of the Environment 2010 – Our Future, Our Choice Program, there is one trying to ensure a superior environmental quality so that public health may not be affected.

In this context, one needs to reconsider the measuring process of life quality by means of accomplishing a balance between economic, social indicators and environmental indicators, as well as between objective indicators and subjective quality of life

indicators. Ioan Mărginean defines life quality as being 'the sum of elements pertaining to the physical, economic, social, cultural, political and health areas etc., in which people live, the content and nature of their activities, the characteristics of personal relationships and social processes in which they engage, the goods and services to which they have access, the consumption models adopted, their lifestyle, the assessment of the circumstances and results of activities that match the population's expectations, as well as the subjective states of satisfaction/dissatisfaction, happiness, frustration etc.' (2004, p. 39). He has identified a minimal set of life quality indicators which refer to: the person (state of health, safety, anxieties), the population (vital statistics), the natural environment (polluting factors, affected areas, proposed standards), the human settlements, the lodging, the social environment (trust among human beings, social pathology), the family, the professional training, the job, macroeconomic resources (the GDP/capita value, the population consumption fond), the income (sources, level, structure), the consumption, the services, the household, the education (access, quality), health services, culture, the insurance and social work services, free time, the political environment, the general life satisfaction.

Increasingly, human well-being is understood as related to physical, natural and human capital. With such an approach, the concepts can be thus operationalized: human well-being through life expectancy, the fluxes of physical capital through the GDP/capita, the natural capital fluxes through the environmental print and those of human capital through education (Dietz, Rosa and York, 2009). There are also studies which approach life satisfaction as being related to environmental well-being (MacKerron and Mourato, 2009; Welsch, 2007).

The objectives pursued in this paper are centered on knowing the Romanian urban inhabitants' interest and concerns regarding the environmental factors and the awareness of their importance for the quality of urban life as a basis for the decisions made by the local authorities. This happens because 'advocates of political decentralization assume that decisions made with greater participation will be better informed and more relevant to diverse interests in society than those taken only by national political authorities' (Rondinelli, 1999, p. 2).

The remainder of this paper is set out as follows. Section 2 provides a literature review identifying the main characteristics regarding the consumption of environmental factors and the Romanian urban inhabitants' perception of their quality. Section 3 continues the review focusing on the perception regarding environmental factors' consumption in the urban space. Section 4 considers the method used to address the research question, and Section 5 outlines the results of the research, while Section 6 summarizes and concludes the paper.

## **2. Towards a green city. Challenges for public administration**

The six dimensions of a sustainable community are considered to be the natural, political, economic, human, social and cultural capital (Roseland, 2005, p. 13) and all these dimensions have proven to be significant predictors for life satisfaction (Abdallah, Thompson and Marks, 2008).

For a long time, the environmental factors consumption (Stern *et al.*, 1997) was de-regulated being considered just a right, not also a responsibility. 'The transformation of these environmental factors from common goods used without any limitation in general interest goods whose integrity must be protected for present and future generations, the environment becoming protected as any other right of the human being, represents a notable evolution in the last 50 years. But this mostly happened also due to every sort of ecological disasters which had a significant impact on public health' (Rădulescu, 2011, pp. 12-13).

Apparently, unlike other consumption goods, the environmental factors can be used for free because they are not considered to be properties. Actually, qualitative environmental factors are increasingly expensive (a house surrounded by a garden, a quiet, clean area, a holiday in the mountains) and one can also add the fact that air conditioning units, the air or water filters and so on which can improve quality of life are more and more expensive. Another characteristic specific to environmental factors consumption is that it is influenced by a third party, the environmental pollution being felt also beyond the place it happens: no matter how remote the domestic environment can be, no matter how clean and surrounded by green space, an environmental catastrophe can affect it.

In cities, the quality of environmental factors is altered by industrial activity, by the frequency of transportation and population density, all these contributing to the air pollution, to noises above the acceptable level, to waste in quantities that go beyond the environment's absorption capacity. Studies (Qian *et al.*, 2010) show that urbanization is responsible for the increase of air pollution, for low water quality, for the extinction of some species of plants and animals, for the decrease in biodiversity, for the destruction of landscapes by the 'march of bricks and mortar' (Toynbee, 1979, p. 61).

Modern transportation, ever more rapid and comfortable - especially the personal means of transportation - are on the one hand big consumers of fuel and energy, and on the other hand extremely pollutant (airplanes, cars) and also dangerous for children and old people. In the case of cars, the negative phenomena are amplified by the fact that most cities, not only the Romanian ones, have not been designed, in what the infrastructure is concerned, for the contemporary automobile reality. We are referring not only to streets, but also to parking lots and garages which themselves contribute considerably to the decrease of green spaces and also to the cars' alarms responsible in an ever increasing degree for noise pollution. In the same respect, beyond the number of cars, trucks, buses, trams etc. their age and technical condition are equally important elements that can worsen the degree of pollution, the number of accidents or fuel consumption.

Another important problem is represented by the increase of water consumption in cities, a fact that imposed the introduction of technologies for the treatment and recycling of industrial and domestic water, with the compliance of hygiene norms and generally, with water quality norms. All this happens in the context in which water consumption reduction, especially the domestic one, is not a good solution if one

takes into consideration the need to obey some hygiene standards among the population (in view of preventing diseases caused by poor hygiene).

All these problems and those connected to them, represent challenges for public administration which on one hand, knows better the context of the each city's evolution, and on the other hand, has all the necessary means (financial and decisional) to solve them as well as to match and harmonize them with other aspects (of economic, social or other character) which sometimes contradict them.

Considering the conditions in which 'the development of democracy demands the setting up of a new relation between citizens and the administration, the growth and the reinforcement of the authorities' role and the revaluation of the partnership between the civil society and the local elite' and the decentralization context, in the following period it would be desirable to 'witness the growth in quality and efficiency of the public services; and also an improved manner in which the local administrations answer the demands brought by the citizens and the local development process' (Profiroi *et al.*, 2005, pp. 3-4).

The analyses made by the European Commission regarding the effects of the measures taken through the environmental programs reveal that not only the results are the anticipated ones, but also the environmental issues (the greenhouse effect, the loss of biodiversity, pollution, the ever growing quantity of waste, the anthropogenic impact) become ever more pressing (Commission of the European Communities, 2007).

The solution which takes shape as an answer to these problems is the one represented by the 'New urbanism' with its alternatives: 'neo-traditional town planning', 'pedestrian pockets', 'transit-oriented development', 'complete communities', 'lasting communities' (livable, affordable, safe, transit-oriented, inclusive, neighborly, growing). 'New urbanism is the name given to an emerging set of planning principles designed to revive communities and provide a meaningful alternative to suburban sprawl' (Roseland, 2005, p. 139); it has besides those principles another important dimension – 'think green' (Adler, 1995).

One can associate to the concept of 'new urbanism' a complementary one called 'green urbanism', referring to 15 principles: '(1) climate and context, (2) renewable energy for zero CO2 emissions, (3) zero-waste city, (4) water, (5) landscape, gardens and urban biodiversity, (6) sustainable transport and good public space (compact and poly-centric cities), (7) local and sustainable materials with less embodied energy, (8) density and retrofitting of existing districts, (9) green buildings and districts, using passive design principles, (10) livability, healthy communities and mixed-use programs, (11) local food and short supply chains, (12) cultural heritages, identity and sense of place, (13.) urban governance, leadership and best practice, (14) education, research and knowledge, and (15) strategies for cities in developing countries' (Lehmann, 2010, p. 2).

The concept of quality of life plays a central role in the green urbanism agenda, because the values of connection with nature are considered central for the health and well-being of inhabitants. Thus, creating beautiful and enjoyable neighborhoods is an

ideal connected to that of creating livable cities, in which also socially and economical inclusive practices (adequate housing provision, services for all members of society) take place (Beatley, 2000, p. 8).

In this context, in the following, we would like to analyze the levels and correlations of the Romanian urban population's perception regarding some of these green city principles: green spaces, air and noise.

### **3. The perception regarding environmental factors consumption in the urban space**

Romania's constitution mentions in article 35 'the right of every person to enjoy healthy and environmentally balanced surroundings' (Romanian Constitution, 2003). The citizens, especially urban ones, can use this right less and less due to the fact that on the one hand, the entrepreneurs sacrifice the natural environment for the profit of their business, and on the other hand the poverty of cities prevent local authorities from taking measures, even if the laws (like the law for environmental protection – 137/1995) stipulate sanctions in these cases. Furthermore, even within the EU 'the expenses for economic businesses in the 27-EU were about 4.7% of the 2010 GDP, while for defense, public safety and order, environmental protection, housing and community businesses, leisure, religion and culture less than 2% of the GDP was allocated' (Eurostat, undated).

For Romania, as for other developing countries, environmental degradation is amplified also by foreign investments, especially those of corporations which have no interest to protect the environment, seeking exclusively to obtain profits as large as possible (Jorgenson, 2009). Last but not least, the citizens' right to property over the largest part of the land and the remaining land where blocks of flats are built on the town halls' property makes the responsibility concerning the maintenance of these areas to be passed back and forth from authorities to citizens. The concept of the eco-friendly community becomes difficult to apply in the Romanian urban areas considering also the survival of communist mentality according to which state's property is actually nobody's property. In these circumstances we are witnesses to an accentuation of environmental risks in the urban area, with negative consequences over the inhabitants' health and quality of life.

### **4. The methodology of the study**

In the present paper we have made a secondary analysis using the data provided by the Flash Eurobarometer 277: Urban Audit Perception Survey (European Commission, 2009b). The survey carried out simultaneously in 77 cities from EU, Croatia and Turkey in October and November 2009, had as a goal to identify the opinions and behaviors of city dwellers about a host of factors connected to the quality of urban life. The opinion data were analyzed in conjunction with other available statistical data (European Commission, 2009a). The survey was conducted by telephone interviews on a sample of about 500 persons aged at least 15 from each city, resulting in the end over 37,500 interviews. The authors of the present study have obtained the data in Au-

gust 2010, at their request, through ZACAT (the social data portal of GESIS); the data processing was made using the statistical analysis soft SPSS© version 16.

The Flash Eurobarometer 277 included three Romanian cities: Bucharest (503 subjects), Cluj-Napoca (503 subjects) and Piatra Neamț (501 subjects); the total number of interviews made in Romania was 1,507. We have represented in the next table the socio-demographic distribution of the sample by city.

Table 1: The distribution of the interviewed population by city

Socio-demographic data		Bucharest	Cluj-Napoca	Piatra Neamț
Gender	Male	46	47	48
	Female	54	53	52
	Total	100	100	100
Age group	15-24	18	24	19
	25-39	28	22	24
	40-54	30	32	35
	55+	24	22	22
	TOTAL	100	100	100
Education (in years)	Up to 15 years	6	5	5
	16-19 years	32	36	44
	20 years and above	47	41	37
	Still studying	15	18	14
	TOTAL	100	100	100
Employment	Self-employed	9	8	5
	Employee	41	34	37
	Manual worker	5	8	8
	Not working	45	50	50
	TOTAL	100	100	100
Household type	Single person household	20	18	17
	Married or cohabiting couple, no children or no children living at home	21	20	24
	Single parent, one or more children living at home	8	6	7
	Married or cohabiting couple, with one or more children living at home	41	47	46
	Other cases	10	9	6
	TOTAL	100	100	100

\*The figures represent percentages of the total by city

The following categories of questions were analyzed: satisfaction with green spaces and pollution as serious problems in the city, noise as a social problem in the city and the hierarchy of severity of problems in the city. All the problems were reported to socio-demographic variables.

We focused on the consumers' perception regarding the quality of three environmental factors: green spaces, air, and noise; on one hand because there is a connection between them, on the other hand because they have an ever increasing influence over the population's health, since they are relevant for urban life quality in general.

In cities, the air quality and the noise levels are negatively influenced by industrial activity, transportation, the quantity of urban waste. Meanwhile, they can be positively influenced by the existence of green spaces that purify and improve air quality,

reduce the temperature and noises and furthermore, create comfortable, pleasant surroundings. The latter, in its turn attracts citizens of all ages allowing for the increase in social connections (whose deficit is a real problem of the contemporary urban world).

We should emphasize that subjective quality of life indicators – such as those which we will analyze in the following - reflect perceptions that are influenced by aspirations, social norms, and social comparisons. It is somehow inherent that a population still confronted with economic difficulties will not rank the problems of pollution and cleanliness in their cities as the most important, even if the objective data show that the Romanian cities are lagging behind their European counterparts with regard to the amount of green space per inhabitant. The use of subjective indicators is, however, recommended in all quality of life studies, because they are an important supplement of objective data and measure also the cultural environment (which give shape to perceptions and opinions).

## 5. Results

### 5.1. Satisfaction with green spaces

Among the 8 items that measure the inhabitants' satisfaction with different domains of urban life was also included a question regarding the satisfaction with green spaces (parks, gardens). The results are presented in Table 2.

Table 2: Satisfaction with green spaces (parks, gardens) by city

	Very satisfied	Rather satisfied	Rather unsatisfied	Totally unsatisfied	Total
Bucharest	17.3%	50.9%	16.9%	14.9%	100%
Cluj-Napoca	22.8%	46.0%	22.2%	9.0%	100%
Piatra Neamț	50.8%	38.8%	5.9%	4.50%	100%

A previous analysis (Ștefănescu and Bălțătescu, 2010) shows that green spaces are among the items that the inhabitants of Romanian cities declare to be most satisfied with regarding the cities they live in (next to public spaces and cultural facilities). This happens despite the fact that, as shown by Chiriac, Humă and Stanciu (2009) the development of Romanian cities did not necessarily take into account providing for the need of green spaces.

The benefits brought by these spaces are numerous and diversified; the environmental benefits consist of chemical, physical and bacteriological cleansing of the environment, temperature reduction, increase in humidity, noise pollution reduction, preservation of the habitat for different animal species. The socio-cultural benefits are given by the fact that green spaces offer appropriate playgrounds where children, the young and the old can meet and socialize, they can offer relaxation and can reduce stress or they can be venues for some cultural and social events, giving a cultural identity to urban space. The economic benefits can contribute to improving the image of the city and implicitly to the development of tourism, to attracting investors and creating new jobs as well as improving the housing conditions (Chiriac, Humă and Stanciu, 2009).

There are big differences among the inhabitants' satisfaction from different cities: the inhabitants of Piatra Neamț are largely pleased and very pleased, followed by those from Cluj-Napoca and, at a distance by those from Bucharest. This fact can be explained by the green spaces' situation in the three cities in correlation with their size, industrialization degree and the geographical area where they are situated. The distribution of this type of satisfaction according to socio-demographic categories is presented in Table 3.

**Table 3:** The distribution of satisfaction regarding green spaces according to city and socio-demographic categories

Socio-demographic factors		Bucharest	Cluj-Napoca	Piatra Neamț
Gender	Male	62.7	69.9	87.8
	Female	69.0	65.7	88.8
Age group	15-24	75.1	70.7	90.1
	25-39	61.6	59.6	91.2
	40-54	61.7	67.5	87.7
	55+	70.2	72.5	84.5
Education (in years)	Up to 15 years	86.5	78.3	92.7
	16-19 years	71.6	73.3	89.7
	20 years and above	57.3	60.2	84.3
	Still studying	73.5	70.1	90.8
Employment	Self-employed	54.1	51.4	77.2
	Employee	64.9	62.4	87.7
	Manual worker	71.2	75.6	89.6
	Not working	68.9	73.0	89.8
Household type	Single person household	64.5	72.4	84.5
	Married or cohabiting couple, no children or no children living at home	65.1	62.5	89.4
	Single parent, one or more children living at home	50.8	67.0	95.3
	Married or cohabiting couple, with one or more children living at home	70.5	68.8	88.1
	Other cases	66.6	65.8	87.2
For how many years he/she has been living in the city	Was born here	67.4	69.0	88.4
	1-10	61.2	56.4	95.5
	11- 25	54.4	60.2	91.5
	25-40	71.3	71.0	87.3
	40+	68.8	70.2	83.7
TOTAL		66.1%	67.7%	88.3%

One can notice that satisfaction with green spaces is lower with men than with women (except the case of Cluj), with more educated persons and with couples with children. It decreases with maturity compared to the 15-24 age group, in order to increase again over 55 years of age (except in the case of Piatra Neamț). The explanation could consist of the fact that educated persons understand the importance of green spaces for the health of the city and its inhabitants, women and couples with children feel the need for green spaces where they can take refuge from crowds, traffic and noise in order to relax and the elderly, in the lack of any concerns connected to a job, are looking for quiet places where they can socialize with their peers. Likewise, as the

seniors are concerned, numerous studies (e.g. Jirovec, Jirovec and Bosse, 1985) show that to their physical and psychological health one can associate besides the educational and income level, environmental factors too. Also the respondents who have children, confronted with the need for their relaxation in nature, become more aware of these factors and value more negatively than others the existing possibilities in this respect.

## 5.2. Perception of environmental factors by city residents

Analyzing the mutual relation between the human behavior and the physical environment, studies regarding the behavior, health and stress caused by the environment show the fact that ‘environmental factors such as noise, temperature and air pollution are strong stressors’ (Cohen *et al.*, 1986; Fernández-Ballesteros, 2001).

We were also interested in the hierarchy of environmental factors perceived by city residents as having an impact on their quality of life. Table 4 shows that the problem which is perceived by most Romanian city dwellers as being detrimental to their quality of life is air pollution, followed very closely by noise (in Piatra Neamț the difference between the two is statistically insignificant).

The last problem in all three cities is the lack of cleanliness. However, comparing the average evaluation levels we can see that this problem is rated very closely to the first two by the respondents from Bucharest, while the evaluations in Cluj Napoca and mostly in Piatra Neamț show that this is a marginal problem in the citizens’ perception. We tend to agree that the differences in these evaluations reflect the reality: Bucharest is a big city with huge sanitation problems. Piatra Neamț, on the other side, seems to be the city which offers the highest ecologically related quality of life (most of the respondents converge with the view that these factors are not really a problem in the city).

**Table 4:** Hierarchy of environmental factors perceived by city residents as having a negative impact on their quality of life (averages on scale from 1 to 4).

	Bucharest		Cluj Napoca		Piatra Neamț	
	Mean	Standard Error of Mean	Mean	Standard Error of Mean	Mean	Standard Error of Mean
Air pollution is a big problem	3.8	.03	3.2	.05	2.1	.05
Noise is a big problem	3.6	.04	3.0	.05	2.2	.05
Lack of cleanliness is a problem	3.2	.04	1.9	.04	1.3	.03

Another question we had in view was how the environmental problems are ranked among the other problems connected to the quality of urban life. Pollution and noise have been included in a list of 10 city problems, the respondents having to choose the first three. The list (Table 5) of the most frequent problems mentioned represents an image of the public agenda.

Air pollution is one of the most important problems (among the first three) only in Bucharest, in the other cities it is a medium-sized problem. Around a third of the respondents have quoted it among the first three problems in Bucharest and Cluj-

Napoca, while it concerns only about 19.4% of the inhabitants of Piatra Neamț. One can notice in Table 5 that in Cluj-Napoca and especially in Piatra Neamț although the air pollution is on the 3<sup>rd</sup> place, this problem is situated at a great distance from the 1<sup>st</sup> priority represented by creating jobs/reducing unemployment; these two cities unlike Bucharest, having a bigger unemployment rate – 6.3% in Cluj County, 8% in Neamț County, while in Bucharest the unemployment rate was only of an average of 2.3 % (National Statistics Institute, 2011).

**Table 5:** The mentioning frequency of the most serious issues for the community

Issue mentioned among the first three problems	Bucharest	Cluj-Napoca	Piatra Neamț
Safety in the city	21.5%	17.6%	14.7%
Air pollution	38.1% (3)	31.0% (4)	19.4% (4)
Noise	13.0% (9)	13.9% (9)	8.3% (10)
Public transport	20.9%	16.5%	13.9%
Health services	57.8%	54.7%	61.7%
Social services	10.6%	16.6%	17.3%
Education and training	39.0%	36.4%	33.8%
Create jobs / reduce unemployment	34.6%	55.0%	67.0%
Housing	15.4%	12.5%	14.1%

\*The place awarded to that specific issue among the mentioned ones is mentioned between brackets

Likewise, there is a big difference among the share of those who consider air pollution to be a problem in Piatra Neamț, respectively in Bucharest and Cluj-Napoca, which can be explained by the differences between cities and towns regarding the presence of industries and transportation within the urban area, and on the other hand by the relief formations where the town is situated.

In exchange, noise occupies the last or the last but one place in all the investigated cities. The research in this domain shows that ‘noise impact is very different, taking into account both the intensity of noise, the particular susceptibility and not the least the environmental and motivational framework’ (Putnoky and Putnoky, 2004, p. 12). There are noises of reduced intensity but very disturbing (e.g. the buzz of an insect during the night), or strong noises that conduct to a well-being state (e.g. the noise made by the opening of a champagne bottle at an anniversary). But within cities, the noise produced by transportation means, dependent of the traffic’s intensity and speed, the characteristics of the engine, the state of the vehicle and of the street, is a discomfort and stress factor. The fact that it does not represent a problem for the interviewed Romanian town dwellers can be accounted for by several causes: the fact that they are confronted with problems considered even bigger and more serious than noise or the fact that during the last years urban homes have been phonically insulated (especially by using insulated glazing). When compared with their European counterparts, the environmental conditions of Romanian cities are rather worse; however, with the exception of Bucharest, they are not rated as such by the inhabitants. This can be explained by the salience of economic problems, but also by the deficit of environmental education which leads to a lower awareness of environmental problems and also lower expectancies in what concerns the cleanliness and lack of pollution in their cities.

The distribution by socio-demographic categories of those who mentioned air pollution among the first three problems is presented in Table 6.

**Table 6:** The percentage of those who mentioned air pollution as a problem (by city and socio-demographic categories)

		Bucharest	Cluj-Napoca	Piatra Neamt
Gender	Male	33.0%	29.9%	19.1%
	Female	42.4%	31.9%	19.6%
Age group	15-24	37.9%	29.0%	26.7%
	25-39	43.9%	30.5%	15.1%
	40-54	37.1%	31.1%	19.3%
	55+	32.6%	33.8%	17.7%
Education (in years)	Up to 15 years old	33.7%	23.7%	12.7%
	16-19 years	35.3%	29.6%	18.9%
	20 years and above	41.4%	33.6%	18.8%
	Still studying	39.0%	29.7%	21.9%
Employment	Self-employed	31.5%	35.3%	22.3%
	Employee	41.3%	31.3%	17.4%
	Manual worker	32.8%	32.4%	32.4%
	Not working	36.8%	29.9%	18.7%
Household type	Single person household	32.7%	34.9%	15.9%
	Married or cohabiting couple, no children or no children living at home	36.6%	36.6%	20.8%
	Single parent, one or more children living at home	22.0%	12.9%	17.8%
	Married or cohabiting couple, with one or more children living at home	44.3%	30.1%	19.3%
	Other cases	38.6%	28.4%	22.5%
For how many years he/she has been living in the city	Was born here	37.4%	28.4%	24.3%
	1-10	44.1%	39.8%	18.0%
	11- 25	43.6%	35.8%	12.6%
	25-40	37.1%	32.9%	14.7%
	40+	35.6%	31.3%	17.1%
TOTAL		38.1%	31.0%	19.4%

The differences must be interpreted cautiously given the small-sized samples which generate a big estimate error (of minimum 5%). Yet they show a trend: women (in Bucharest), more educated persons (in Bucharest and Cluj-Napoca), the couples with children and the persons who moved to that city within the last 10 years estimate that air pollution has a primordial place among the town's problems.

The correlation between the air pollution assessment and that of noise is rather high. The profiles of the persons who assess the pollution as being a problem and those who assess noise as being a problem are similar. The correlation coefficients among the two variables by city are listed in Table 7.

**Table 7:** Pearson bivariate correlation coefficient  $r$  between the perception of air pollution and noise as a problem, and the reliability of summative scale composed of two variables

City	Pearson coefficient $r$ bivariate	Reliability coefficient (Cronbach $\alpha$ ) for the summative scale
Bucharest	0.56	.711
Cluj-Napoca	0.63	.775
Piatra Neamt	0.54	.701

The high correlations allow us to build a variable which might sum up the awareness regarding air and noise pollution problems. We have included in the previous table fidelity coefficients (Cronbach  $\alpha$ ) of such a scale for the three cities. As noticed, they are beyond the accepted minimum level of 0.7.

**5.3. A predictive model of the pollution perception as a problem in urban places in Romania**

In the next lines we will try to offer an explicative model of the pollution perception as a problem in urban places in Romania using the socio-demographic variables, starting from the data presented in the above mentioned tables which show an empirical connection between the assessment that a person makes on environmental issues and the socio-demographic characteristics.

This can lead us to support a causal model like the one in Figure 1. The signs next to the arrows show the direction of the hypothetical influence that those variables might have on the dependent variable. The independent variables have been selected from those at our disposal in the survey’s questionnaire. According to Zamfir (1987) the socio-demographic variables are exogenous (contextual): they influence the dependent variable by means of endogenous variables (universal) which have a direct link to the effect variable. In our case, from the multitude of socio-demographic variables one can select two groups which influence as many endogenous variables: one representing culture and the other needs.

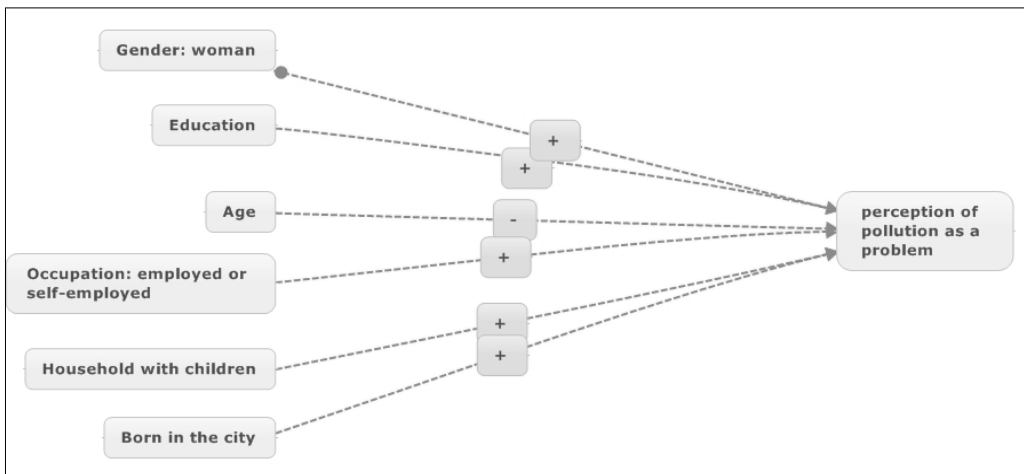


Figure 1: The causal model of the empirical connection between socio-demographic variables and the pollution’s assessment as being a problem

The first variable (culture) influences specifically the perception of pollution as a problem: people are determined by their education, age and the fact of being born in the urban environment as well as by their cultural consumption to embrace certain urban values which value the consumption of quality environmental factors. For ex-

ample the younger and more educated ones are better informed about the environmental risks. Persons with children embrace more the future oriented values, i.e. the concern for the future generations (Erikson, 1950), a fact that might lead to a more acute environmental awareness (Urien and Kilbourne, 2011).

Likewise, the organic and environmental culture has become lately more popular among women who have been exposed to specific cultural products (cosmetics, organic food, family health and child care magazines and TV programs).

The second variable is linked to specific needs. Thus, households with children become more aware of the need for environmental-friendly consumption, since children need for example green spaces where they can play. The employees need green spaces and clean air to regain their strength as well. The transformed causal scheme looks like in that presented in Figure 2.

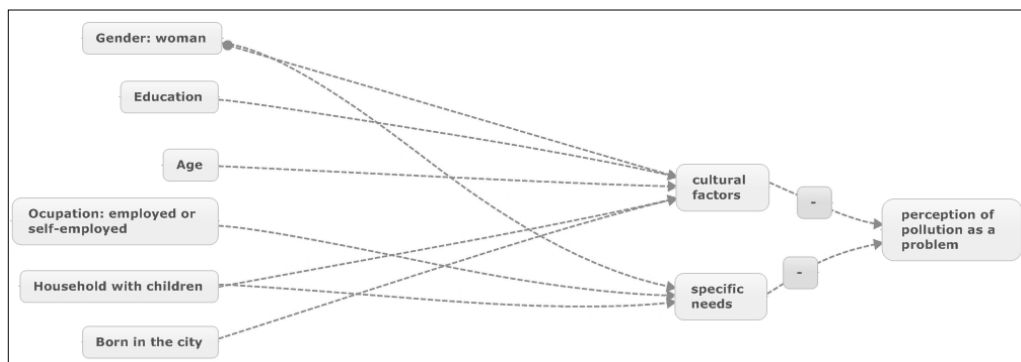


Figure 2: An improved causal model of the empirical connection between the socio-demographic variables and the assessment of pollution as being a problem

In order to emphasize these relations we have used multilinear regression, introducing in the model the pollution perception as dependent variable and the socio-demographic variables as independent variables as well as two dummy variables representing the two cities (Cluj-Napoca and Piatra Neamț, Bucharest representing the reference). These also have the biggest influence on the dependent variable. The pollution perception is significantly influenced by the female gender (in a positive way) and by the manual worker status (in a negative way). This is in line with our predictions: women, who in Romanian cities are mostly responsible with child bearing, resent at the highest level the environmental problems. On the other hand, those with manual work, who are at the lowest occupational scales, have the lowest levels of environmental education, and that leads them towards dismissing the problems with pollution in cities. The age and educational level seem to influence in the expected way the dependent variable too. Nevertheless their beta coefficients are too small to be significant statistically speaking.

**Table 8:** Regression model having as a dependent variable the pollution perception

Variable	Beta	Sig(t)
Cluj-Napoca	-.250	.000
Piatra Neamt (ref: Bucharest)	-.687	.000
Female gender	.064	.002
Age: 15-24 years	-.040	.236
Age: 40-54 years	-.036	.159
Over 55 years (ref: 25-39 years)	-.013	.704
16-20 years of schooling	-.003	.931
20+ years of schooling	+.033	.422
Still studying (ref: <16 years of schooling)	-.033	.434
Self-employed	-.002	.942
Employee	-.020	.482
Manual worker (ref: not working)	-.052	.024
Born in the city	-.004	.865
Household with children	+.043	.089
Adj. r <sup>2</sup>	0.365	

It is important to notice the relatively high determination coefficient, which shows a good fit of the model. Explained variance can be attributed to large differences in the perception (but of course in the situation) of inhabitants of Bucharest compared with those of the other two cities. Of course, the regression model is not a warranty of the causal relation between these variables, but it can offer important clues about determinants of the public's perception on pollution.

## 6. Conclusions

Romanian city dwellers have different perceptions of the environmental factors' quality according to their interests, priorities and concerns. An essential role in structuring one's own environmental factors' consumption and implicitly in their quality and value appreciation is held by education, cultural formation but also by the socio-economic environment where a person lives. Likewise, the existence of specific needs like those of families with children and of workers has also an important influence.

In Romania, most of the time (including the urban areas) the environment is seen as a less important issue, despite the interdependency between the environmental indicators and the other macroeconomic indicators (including those concerning life quality) and despite the fact that the efficiency of environmental policies seriously influences the population's health state (Young and Minai, 2002).

In such circumstances, local authorities should internalize the concept of 'Pareto optimum' – a state of society characterized by the best possible allocation of resources that would ensure the biggest welfare for the whole society; a state in which some individuals' satisfaction growth determines its reduction for somebody else (Pareto, 1909) and which would act so that the jobs generating economic development cannot compromise the state of the natural environment, the quality of the environmental factors; in other words, one should also consider social and environmental issues when making economic decisions.

In our country environmental problems do not seem to represent a priority for city dwellers maybe also because Romania's cities are homogenous enough when it comes to life quality or habitation 'as a follow-up of the communist uniformity'. As a consequence, the Romanians are generally pleased with the state of their cities, not having 'a habitation model to which they could relate and which can cause them discontent' (Sandu *et al.*, 2006, pp. 70-71). Generally speaking, the level of aspirations concerning the environment of the urban population in Romania is rather low. This fact could generate a new attitude in the public administration for reconsidering priorities for local public policies, which would reallocate funds for the preservation of a clean and healthy environment towards the objectives considered to be more important especially by citizens.

At the same time, environmental activists are almost non-existent, which furthermore encourages the authorities' lack of interest and makes possible statements like: 'the environmental policy is badly conducted and superficially tackled, both by national and local authorities' (Velişcu, 2008, p. 94).

In the Romanian urban space there is no place yet for terms like community capital or 'community sustainable development' (Roseland, 2005) and even less, these terms are not to be found at the basis of community action. Making the population aware of the environmental issues is even more urgent since Arnold Toynbee underlined in the 1970s that 'the first tragedy is that man accepts to become the victim of the artificial environment that he himself has created through his technological performances' (Toynbee, 1979, p. 25). This task should be adopted by the school, in view of educating students for an environmental culture, encompassing rights, obligations and responsibilities for the environment. Theoretical and educational concerns, even though weak ones, are nonetheless present in Romanian society (school subjects like: Civic Education/Culture, Education for a Sustainable Development, extra-curricular activities, and projects with environmental content).

The urban public administration becomes an important actor in creating a quality urban environment not only considering the legal attributes associated to it, but also from the point of view of the necessity of assuming one's responsibility about unifying citizens' efforts, about forming a civic attitude and a desirable community spirit. One way by which this target can be reached is that the public authorities should collect and analyze larger amounts of such data and to release them to the public. This would inform also the decision factors on the current state and trends of the city, but also the public via city-level quality of life and sustainability reports accessible to everyone, which is a practice in North American and Western European countries.

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