



Implementation of Environmental Legislation, Environmental Knowledge, Pollution, Climate Changes, Rational Use of Natural Sources of Kosova

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ABSTRACT

Tomotivate and to increase people's awareness regarding the environmental protection (water, air and earth) and the rational use of natural sources a scientific research methodology has been used. The aim of the paper is that through sensitizing activities motivate and sensitize the citizens about the management and the environment protection. For the present scientific research we are based in the results of interviews with citizens, application of statistical methods and the questionnaires used to investigate the knowledge of Kosovo citizens about the environment and pollution level. In this research are included 2350 respondents: administrative staff, citizens from both urban and rural regions, farmers, teachers and students. The citizens, students, teachers, administrative staff and Kosovo society will benefit from this research on how to protect the environment for the future generations. This paper will analyses the activities that are necessary and can be realized in school spaces, work places, industrial zones, rural and agricultural zones that deal with environment protection, increasing green zones, landscapes and the degree of environmental pollution reduction.

Keywords: Awareness, waste disposal, recycling, health, man.

INTRODUCTION

Raising the public awareness to protect the environment in their work spaces, urban spaces, parks, city spaces, villages, and school spaces is of special importance for Kosovo institutions. Without sufficient knowledge about environmental pollution is not possible to expect increased awareness, culture, morals and habits to protect the environment¹. The degree of green zones has a big impact because it reduces the quantity of CO₂ in the nature. For example reduce the level of the dust (1 hectare forest absorbs 5.5 tons of dust within one year). The use of green zones for persons with special needs, with psychic loads, according to the data of the regional hospital of Peja it results with reducing of blood pressure, reducing of psychic pressure, stress and better sleep².

The irrational use of drinking water by agricultural sector may create pollution of underground water basins and it may encourage the displacement of the population in urban areas. In 2011 the urban population accounted 38% of the total population in the Republic of Kosovo, in 2016 the illegal logging of trees for one year was 1.6 million m³ and degraded river surface in the value of 1219.23ha³.

The interest of human society to recognize the importance of economic value, classification and recycling of waste is not satisfactory because there is not enough interest and sensitization of government on one side and non-implementation of legislation for punishment of those who do not comply with environmental laws on the other side.

The weak management of urban and industrial waste in Kosovo, container overflowing with waste, release of heavy metals from mining activities without prior treatment as the river of Sitnica that is considered a dead river because of the high level of phenol.



Figure 1: Fish death in the river of Sitnica because of high level of phenol and other heavy metals

Some economic activities such as: industry, transport, agriculture, etc. are obviously are sources of significant influence on the environment.

METHODOLOGY

This paper methodology is the research through structured and unstructured interviews, combination of research methods and application of statistical methods. To collect the data different techniques has been used: interviews with employees in their working place, occasional citizens, farmers and students. The research was conducted in a period of six months.

The ways to manage the water rationally and the pollution prevention

In the today world the half of the population is facing with the problem of potable water. The role of water is fundamental for living beings and for the planet. Water is needed for drinking, household needs, agriculture, industry, gardens, cleaning, etc. But it is important to understand the meaning of direct use of water as for production, supply, use and development. Nowadays, with the world's advanced developments, it is difficult to think of clean ecological water⁴. The steps we take today for ecological water storage from industrial wastes, urban pollution from heavy metals is of a vital importance for us and our future generations. The water today should not be used in an uncontrollably way, if so we reduce the potable water reservoirs. Any drop of water should be saved. Only in this way we can provide sufficient quantity of water for the future generation. Building dams, creation of artificial lakes to accumulate water, land drilling up to deep areas for filling the underground reservoirs is vital for today and future society⁵. These water collection occur during the rainy seasons otherwise is not in the interest of the society to do climatic displacement of the population. Continuing with this trend of managing the water resources in the future for sure we will have climatic displacement of the population.

Climate change/global warming

According to the Intergovernmental Panel on Climate Change there are some differences on the climate that can be identified (for example with that of statistical tests), by the changes in its average. This has to do with any climate change over time, for natural causes or as a result of human activity. The emissions of greenhouse gases, this year are released into the atmosphere about 9.5 million tons of CO₂, energy sector is the biggest contributor of greenhouse gas, road transport 12%, use of soil 8%, wastes 4% and industrial processes 1%.

Poor implementation of environmental protection laws and lack of control, brought constant water, air and earth pollution. Waste disposal in the environment remains one of the most serious problems nowadays of the 21st century⁶. Parks and forests are heavily affected by warming phenomenon. In villages it exists a tradition from the past, they through the wastes in the banks of the river or into the river. This has caused the pollution of rivers, lakes and seas; it causes growth of a high level of bacteria and algae harmful to eutrophication of waters. The decomposition of waste produces methane, very harmful gas for fishes and other aquatic organisms this is 20 times more harmful to the climate than CO₂.

In the early 2001s, the scientists warn that global warming will melt glaciers in the mountains in the north and south poles over a period of 100 years. The Fourth Assessment Report published in 2007, warned that the global warming can increase the level of seas with 0.4 – 3.7 m above the level before the industrial revolution⁷. In

2009 the scientists were alarmed from the last information from both poles, glaciers were melting much faster than expected, the ice layers in the Arctic Ocean could disappear in the years 2020-2040. Much of the melting of the ice is due to the release of a large amount of methane which has accumulated for decades and is disastrous for the environment as the ozone depletion. The effects of global warming are felt across the globe, regions with soft climate in the past are suffering from prolonged droughts in the summer and major floods and extreme winters. As a result of droughts and fires millions of people are now considered climatic refugees⁸.

What should we do to slow down and minimize global warming?

The above scenario can become a reality if we do not take urgent measures. Global warming is an already undeniable reality. Earth's history tells us that CO₂ levels in the atmosphere are positively linked to global warming. Also, the evidence shows that it is clear that people are causing global warming. In order to achieve this, all developed countries need to provide more funds or at least reach 20-30% of the level of green investment.

Water pollution and the largest greenhouse effect contributors

Pressures in the waters come mainly as a result of increased volume of wastewater without proper treatment: physical, chemical and biological. All this affects water organisms to increase values in physical, chemical and microbiological parameters⁹.

Also, multiple impacts come from atmospheric rainfall: gases in the air like (NO_x, SO₂, CO₂, etc.) which are formed by acid rain and directly affect the increase of acidity in the water. Other pressures from precipitation are the irrigation of agricultural lands and other polluting surfaces whereby the growth of suspended matters (fertilizers – N, P, K, NH₄⁺, etc) and inorganic matters (PAH, PCB, herbicides, etc.)

According to surveys about 3,000 ha per year of agricultural land have diminished or changed their destination. Agriculture has used about 80334 tones of fertilizer that contains nitrogen (NPK, UREA and NAG)¹⁰. From this amount of fertilizer used it is estimated that about 26592 tons of nitrogen is used in the agriculture in the Republic of Kosovo. The agriculture sector is considered one of the sectors that is a source of greenhouse gases, and it contributes with about 600 Gg of CO₂, enteric fermentation from livestock, manure management and management of agricultural land¹¹. The agriculture sector as the major food production sector has a direct impact on public health. Conservation of the forestry sector is one of the most important sectors for the reduction (accumulation, absorption) of CO₂ emissions and is considered as a strong reservoir of atmospheric carbon. Forests have accumulated (reduced) about 40,000 tons (40 Gg) of CO₂. Air quality assessment based on data from monitoring stations has the highest



values of SO₂ in 2016 and mainly in monitoring stations that are representative for industrial area and traffic area. There are exceedances of allowed daily values ((125 µg/m³) within 2016. Exceedances of allowed annual values of NO₂ level for the health protection (40 µg/m³) for the year 2016². Based in the position of these stations, we can conclude that in the contributors in increasing the

level of NO₂ are the transportation means and the fuels used for house heating.

Research questions for environment pollution

The aim of the research is to test the citizen’s awareness and to find the ways that executives can influence to the society on how to manage and protection of living environment

Table 1: Number of citizens tested for environmental knowledge, test A

Questions from the test (A)														
1. You are familiar with the personal impact on the environment.2. Are you anxious about the environmental consequences of the 21st century? 3. Are you concerned about environmental equality globally? 4. Do you consume products that have a negative impact on the environment? 5. You know about the importance of public transport instead of using personal cars.														
Test results A	Urban Citizens (700)		Residents of rural areas (500)		Administrative workshops (150)		Teachers (200)		Students (700)		Agricultural workers (100)		Total 2350	
	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	No
1 A	544	156	355	145	70	80	98	102	640	60	45	55	1752	598
2 A	588	112	231	269	88	62	180	20	550	150	65	35	1702	648
3 A	499	201	199	301	66	84	138	62	380	320	68	32	1350	1000
4 A	580	120	234	266	56	94	165	35	591	109	41	59	1667	683
5 A	601	99	167	333	131	19	181	19	651	49	54	46	1785	565
													8256	3494

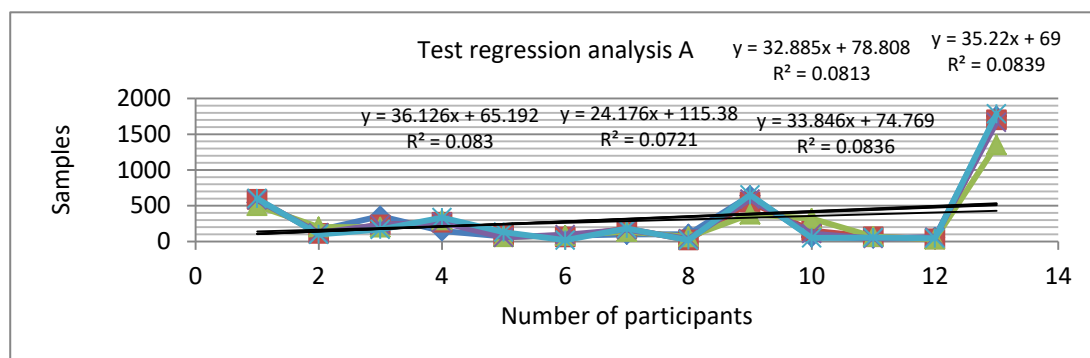


Figure 1: Graphic presentation, results from test regression analysis A

Table 2: Number of citizens tested for environmental awareness, test B

Questions from the test (B)														
1. How much does the use of products consumed by you have an environmental impact?2. How much do you know about how your urban, rural, and land-based waste is managed?3. Know the pollutions caused by vehicles in your country and world.4. Be aware of global warming.5. Is it in the interest of society to reduce products that adversely affect the environment?														
Test results B	Urban Citizens (700)		Residents of rural areas (500)		Administrative workshops (150)		Teachers (200)		Students (700)		Agricultural workers (100)		Total 2350	
	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	No
1 B	401	299	233	267	133	17	183	17	599	101	66	34	1615	735
2 B	151	549	144	356	48	102	129	71	431	269	36	64	939	1411
3 B	488	212	312	188	77	73	167	33	598	102	39	61	1681	669
4 B	601	99	351	149	94	56	188	12	670	30	55	45	1959	391
5 B	666	34	288	212	88	62	155	45	631	69	71	29	1899	451
													8093	3657



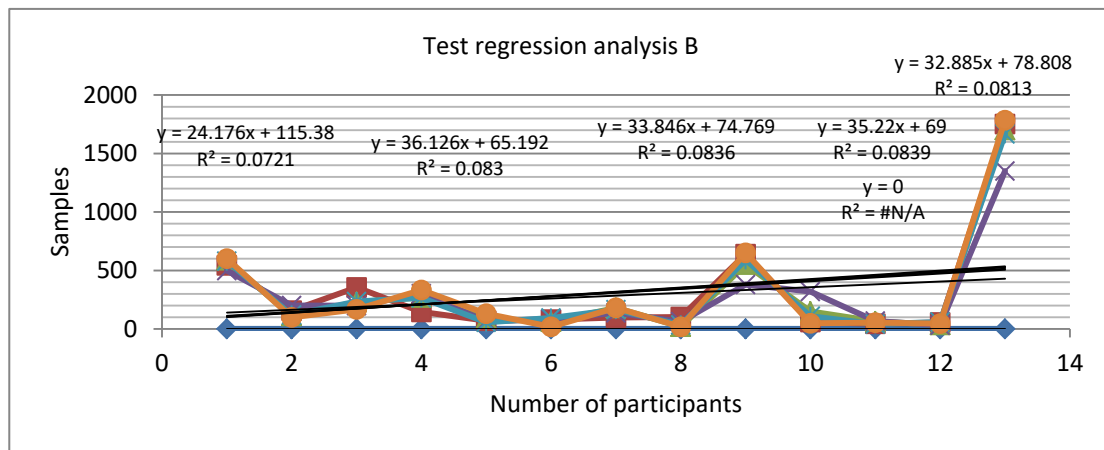


Figure 2: Graphic presentation, results from test regression analysis B

Table 3: Number of citizens tested for environmental knowledge, test C

Questions from the test (C)															
1. Do Consumers Ecological Products. 2. Is it in the interest of human society to purchase ecological products? 3. How does waste minimization / recycling work? 4. It is in the interest of the EU legal limitation on non-ecological / polluting products. 5. Is the increase in taxes for products / polluting activities in the world's interest?															
Test results C	Urban Citizens (700)		Residents of rural areas (500)		Administrative workshops (150)		Teachers (200)		Students (700)		Agricultural workers (100)		Total 2350		
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	
1 C	500	200	451	49	111	39	163	37	451	249	91	9	1767	583	
2 C	501	199	351	149	121	29	145	55	490	210	88	12	1696	654	
3 C	330	370	280	220	74	76	160	40	366	334	36	64	1246	1104	
4 C	211	489	190	310	40	110	89	111	356	344	33	67	919	1431	
5 C	155	545	180	320	60	90	99	101	501	199	12	88	1007	1343	
													6635	5115	

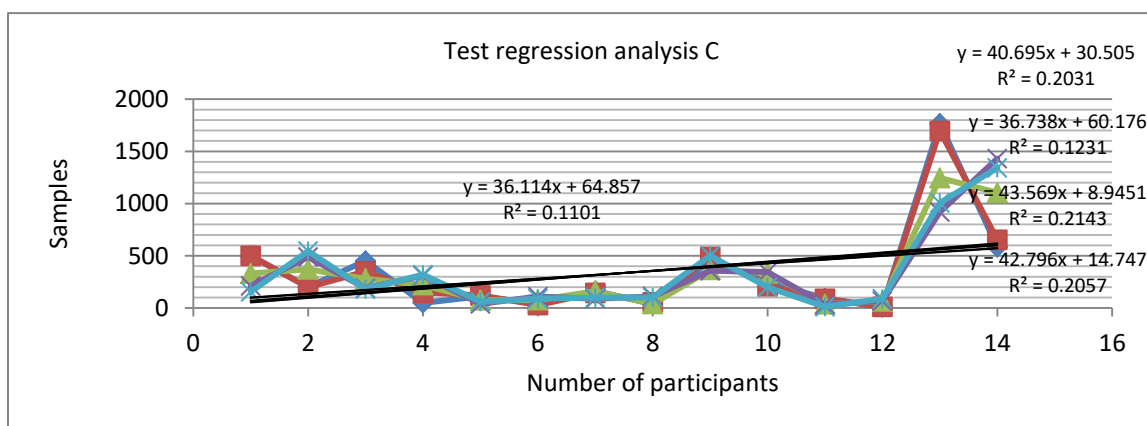


Figure 3: Graphic presentation, results from test regression analysis C

Based to research results we conclude that citizens do not have the necessary knowledge for environment problems, laws and environment in general.

Table 4: Number of citizens tested for environmental knowledge, test D

Questions from the test (D)														
1. Do you believe that ecological products are just as quality as industrial products? 2. Will you pay an extra price to buy a product that has the lowest negative impact on the environment? 3. Is it in the interest of society to establish EU / world laws on ecological products? 4. Do you know that people are getting infected with polluting substances / tumors? 5. Do you know how many people die per year from environmental pollution in the World / Kosovo?														
Test results D	Urban Citizens (700)		Residents of rural areas (500)		Administrative workshops (150)		Teachers (200)		Students (700)		Agricultural workers (100)		Total 2350	
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
1 D	500	200	160	340	80	70	88	112	520	180	58	42	1406	944
2 D	120	580	180	320	60	90	60	140	170	530	10	90	600	1750
3 D	480	220	234	266	66	84	99	101	550	150	40	60	1469	881
4 D	388	312	244	256	65	85	100	100	600	100	43	57	1440	910
5 D	101	599	99	401	79	71	110	90	401	299	39	61	829	1521
													5744	6006

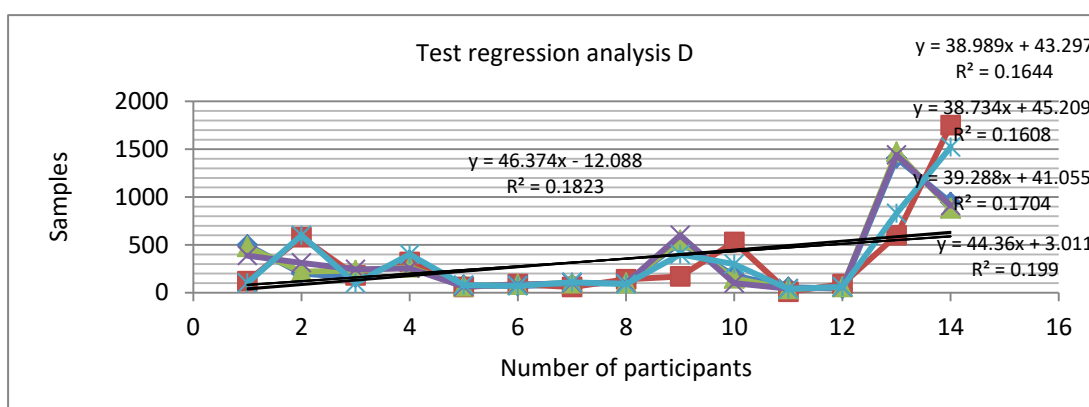


Figure 4: Graphic presentation, results from test regression analysis D

Table 5: Citizens' overall results for environmental knowledge, test A + B + C + D

Results of groups	Yes	No	2350 respondent x 20 questions = 47000
Tab: 1 (Test A ,1,2,3,4,5)	8256	3494	
Tab: 2 (TestB ,1,2,3,4,5)	8093	3657	
Tab: 3 (TestC ,1,2,3,4,5)	6635	5115	
Tab: 4 (TestD ,1,2,3,4,5)	5744	6006	
Total	28728	18272	47000

DISCUSSIONS

The present research shows that the work with consulting and management projects will contribute in increasing the awareness of the society to protect the environment. Also, this research suggests to the state institutions should practice the projects' work it comes to addressing environmental conservation topics. Awareness of society is an important civic responsible factor and healthy individuals. The research shows that citizens do not have sufficient knowledge on environmental management and its effects and consequences on health:

- a) Lack of sufficient knowledge of environmental management and environmental hazards;
- b) Lack of environment-friendly products and carcinogenic diseases;
- c) They have no knowledge of the quality of ecological products;
- d) They do not believe that their behaviour can change the environmental situation and the EU and World laws.

The research carried out has helped to raise citizens' awareness of environmental protection, as we were motivated by the results we received during this research.



Recommendations

In order to mitigate pressures on the environment it is recommended to undertake the following 10 main measures:

1. Enhancing awareness of citizens with sufficient knowledge of environmental protection;
2. Sensibilization of manufacturing organizations in reducing greenhouse gas emissions;
3. The introduction of environmental curricula at all levels of school;
4. Reduction and recycling of urban and industrial waste;
5. Management and use of more qualitative and ecological fuels;
6. Use of alternative transport that causes less environmental pollution;
7. Time limit for the use of outdated and non-catalytic vehicles;
8. Implementation of permissible noise norms by vehicles;
9. Rehabilitation of existing road infrastructure;
10. Strict monitoring of environmental laws and their application.

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