Visual pollution and statistical determination in some of Karrada district main streets /Baghdad

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ABSTRACT

This study objective is to identify the visual pollution in Karrada district main streets as an example of main streets in Baghdad, the public opinion about each pollutants, solutions to reduce and eliminate the pollution were suggested as well. In order to accomplish this objective different methods were used, 16 pollutants were selected, pictures of each pollutants were taken and a questioner were distributed randomly for 270 people to evaluate the public opinion with statistical methods. Garbage, their disposal and storage areas took the first two places as the highest offensive pollutants. The people showed that they find long lines of vehicles, debris and generators appearance ranked third, fourth and fifth respectively .This research showed that more than 70 percent of people are against the militarization of society and they consider any existence of heavy military machinery or personal is highly offensive issue. Other pollutants such as street sellers, beggars, and crossed wires considered as moderately offensive. Car parking in inappropriate places, badly trimmed trees, large billboards in the streets and the buildings criteria considered slightly offensive. The shops billboards and cellular phone and internet towers were considered the least offensive pollutants. Major solutions is to enhance the municipality management in both planning and operation methods relayed to pollution removal, running awareness campaigns to educate the people about the visual pollution effects and how to reduce it and reduce the military appearances in the city .

KEYWORDS :Visual pollution, garbage , militarization, billboards, Buildings frontage design and awareness campaigns.

هشام عبدمناف عطا

مدرس مساعد في مركز الحاسبة الألكترونية – جامعة بغداد

الخلاصة:إن هدف هذه الدراسة هو تحديد الملوثات البصرية في بعض الشوارع الرئيسية لناحية الكرادة، كمثال عن الشوارع الرئيسية في بغداد من وجهة نظر المواطنين ،ومحاولة ايجاد الحلول لتقليل او محو هذه الملوثات. ولتحقيق هذه الأهداف تم اختيار 16 ملوثاً رئيسيا مع التقاط صور فوتوغرافية لها ثم توزيع استبيان بصورة عشوائية على 270 شخصاً وفحصها أحصائياً لمعرفة رايهم بهذه الملوثات. بعد تحليل النتائج وجد ان مناطق تخزين وتجميع المخلفات الصلبة وطرق التخلص منها قد اخذت المرتبتين الأوائل كأكثر الملوثات كرهاً من قبل المواطنين تلتها وحسب الذكر الطوابير الطويلة من السيارات ،الأنقاض ومظهر المولدات في المراكز الثالث والرابع والخامس على التوالي .أظهرت هذه الدراسة ان اكثر من سبعين بالمائة من المواطنين هم ضد عسكرة المجتمع ، ويعتبرون ان اي تواجد للقطع العسكرية والقوى الأمنية ثقيلة التسليح هو من الأمور المزعجة بشدة .الملوثات الأخرى كبائعو الشوارع والمتسولون وتشابك الخطوط الكهربائية صنفت كملوثات متوسطة الأزعاج ؛ بينما كان ايقاف السيارات في غير المناطق المخصصة لها، الأشجار الميتة او سيئة التشذيب ، لوحات الأعلانات الكبيرة وشكل وخواص المباني أعتبرت من الملوثات القليلة التأثير . وأخيراً اعتبرت لوحات المحلات وابراج الهاتف وتجهيز الشبكة العنكبوتية عديمة او الأقل تاثيرا من الملوثات المختارة. وجدت الدراسة إن أهم المعالجات هي تحسين الأدارة البلدية من ناحية التخطيط وتنفيذ عمليات ازالة الملوثات، القيام بحملات التوعية للمواطنين بخصوص تأثير الملوثات البصرية وكيفية التخلص منها وايضاً تقليل المظاهر العسكرية في المدينة .

الكلمات الرئيسية: التلوث البصري،المخلفات الصلبة ،العسكرة ، لوحات الأعلان ، تصميم واجهات المباني ،حملات التوعية

INTRODUCTION

Visual pollution defined as any irregular formations or any negative changes that considered disturbing and leave negative impressions in the mind of people (Yilmaz & Ayse, 2011) . These Irregularity and negative changes can cause over time, a damage in the sense of beauty and the distortion of aesthetic considerations and satisfaction and acceptance of the image of the ugly (Mohamed & Abdel-Gawad, 2011), which can destruct the psychological state of citizens and damaging the Gross national product and the national economy (Kuther, 2011). Many researchers had listed the reasons below as the main reasons beyond the visual pollution;

1- **Administration and management reasons:** Neglecting, wrong decisions like exceptions for some governmental agencies and companies, lack of maintenance for buildings and Infrastructures , legal deficiencies ,lack of control, uses that are not compatible with the functions and insensitivity of local administrations (Khaled, 2009).

2- **Economic reasons:** Different architectural designs, lack of funds, which can be notice in that countries with poor national economy have worse visual pollution than those having strong economy (Al-Kurdy & Kivo, 2009).

3- **Cultural and Educational reasons:** People with lack of cultural or educational levels will have less interest in avoiding any visual pollution (Yilmaz & Ayse, 2011).

This research surpasses any other researches by adding a new reason for visual pollution, which is a Security reason. This is because of the complex situation in Iraq, people are undergoing the view of heavily armed police and army power and their battlefield equipments and vehicles such as T-72 and M1A1(Abrams) Main battle tanks ,(M1117, BTR's and BMP's) soldier carriers and (Humvee's and Dzik-3) armored vehicles. This presence will cause militarization of society. This militarization of society will lead to the creation of a culture of militarism and acceptance of weapons as a normal part of life (Louise, 1995) . (Martin-Baro, 1988) Suggests another influence for the militarization of society, which is mental militarization, in Which violence is the normal response for social problems, disrupting public rational decision-making processes and destroy perceptions of non-violent options for conflict resolution. The result is societal brutalization and the collapse of traditional value systems.

AREA OF STUDY

This study took several streets from al-Karrada district as the study area as shown in **Fig.1** , the reason beyond this choice is Al-Karrada district and its roads represent one of the most important roads in Baghdad because it connect and contain large commercial , residential, governmental and educational areas; these streets are:

1- **Al-Jamia'a (University) Street:** begins **with the** imminent of Al-Jaderia Bridge and ends with Al-Jamia'a intersection. On This Street lies the largest university in Iraq, which is University of Baghdad.

2- **Khalid Ibn Al-Walid Street:** the longest street in Al-Karrada district begins with Al-Jamia'a intersection and ends with Mohammed Al-Qasim Highway, passing through Kamal Junbalat (or Al-Hakim)square, Al-Hurria intersection , Al-Masbah intersection ,Oqba bin Nafia'a Square, Al-Tahriat Square,52 square and Al-Sina'a intersection. Both sides of this street contains mass selling and retail markets for electrical and furniture goods and could be consider as the national center to distribute these goods in Iraq.

3- **Tariq Bin Ziad Street:** Starts from Oqba bin Nafia'a square and ends with Mua'asker al-Rasheed (Rasheed Camp) highway intersection, on this street lays the mass selling and retail of Batteries, tires, vehicles and machines spare parts.

4- **Fawzi Qawoamgi Street:** starts from al-Masbah intersection and ends with Al-Fatih Square. This street is Commercial Street with mass and retail selling of electrical and menswear good.

All these streets beside their commercial importance, they have governmental buildings, cultural centers, social clubs, hotels and restaurants on their sides.

Main streets in any city , is not only some paths to drive on, it is public spaces where people can

walk, shop, meet and can do different social and recreational activities that make urban living enjoyable (Mohamed & Abdel-Gawad, 2011).
Actually, some researchers showed that people have more acceptances to green roads and the drivers showed lower levels of stress when seeing natural roadside compared with building roadside (Akbar, 2003). A research showed that car crashes had decreased in number after landscape improvement was made (Cackowski, 2003).

METHDOLOGY

Usage of photographs

The usage of photographing was essential and crucial element in this study to illustrate the visual pollutants and to work as alternative to the real pollution in the questioner as shown by many researchers , Sample pictures shown in **Fig.2**. (Herzog, 1989) used photos to investigate aspects of the public's perception of urban environments ; (Arriaza M, 2004) Used photos to evaluate the visual quality of agricultural landscapes; (Bulut Z, 2007) applied the visual quality assessment method in this study to offer some suggestions for the future planning in regarding to urban landscape visual beauties; (Jaber, 2009) the visual pollution caused by the commercial and transportation activities was displayed by site photographs; (Kuther, 2011) used the photographs to compare the visual pollution in two main road.

Usage of questioner

Questioner Method used to represent the people opinions about visual pollutants items and – from their stand of view – the major and minor visual pollutants. Interviewees answered the questioner with a condition that any pollutants in the questioners is not in physical contact with them and it is not affecting them in any way but visually; the interviewer give detailed explanation to each item required in the questioner. The 270 participants were asked to evaluate each one of the 16 pollutant scoring from 1 to 10, 10 means very offensive and 1 means low or not offensive. Photographs for each pollutant obtained in the questioner to give more details about them. Statistical methods used to determine the rank of each pollutant, the standard deviation and confidence interval for 99%, 95% and 90 % confidence degree .

In this research, we are investigating the main causes of visual pollution from the people stand of view using a questioner and statistical analysis.

Visual Pollutants

The visual pollutants evaluated in this study were;

- Garbage and boxes remnants in the walkways and curbside: this includes houses wastes, boxes, and plastic bags etc, left by the street sellers, shoppers and shops.
- Crossed over electric wires: because of the electric power lack in Iraq, people are using private generators to provide them with the electricity, they need causing the establishment of private irregular electricity network beside the national electricity network.
- Military weapons, vehicles and checkpoints: due to the security situation in Iraq, many of the main roads are having checkpoints, military police forces and other security agencies to enforce the law, these forces need some requisites like camouflage nets, concrete blocks, water and fuel tanks and other appearances that disturb the population eyes.
- Demolished buildings: this includes the buildings destroyed because of war, terrorist activity or rehabilitation.
- Excavation works & rubbles: includes private and municipality excavation works for any reason.
- Generators smoke, spilled fuel and general appearance: this includes the private sector generators distributed in the area to provide electricity. These generators have infrastructures like diesel storage tanks, circuit breakers board, and sometimes additional cooling system.
- Large advertising billboards: the size, design, materials and contain of governmental and private advertising billboards installed in the median stripes , squares and on buildings.
- Long lines of vehicles: this includes the traffic jams caused by checkpoints and/or road junctions.

- Irregular demonstration of goods: the irregular distribution and demonstration of goods in both shop windows and sidewalk seller.
- Shops and supermarkets Billboards: different sizes, color, design, materials and location of shops billboards cause lack of unity for the observer.
- The irregularity of heights, design, materials and regression of buildings: because of years of neglecting and different legislation the heights, wide verity of materials design and regression (the distance from the building to the curbside) differs widely.
- Overfilled and dirty garbage containers: few numbers of containers and long emptying and cleaning periods causing the filthiness and over fullness of the garbage containers.
- Beggars and street sellers: some beggars lay in the middle of the paved areas with dirty clothes and sometimes with different types of drugs and suspicious objects around them; while street sellers are demonstrating their goods in the walkways or even selling near the road junctions.
- Dead and badly trimmed tress: this caused by neglecting and human activities.
- Car parking in the streets and in green areas or in walk ways: This is a result of small or absence of parking lots in the area.
- Cellular phone, Internet Towers.

RESULTS AND DISCUSSION

The average offensive score for each pollutant listed in Table1.

From **table 1** and **figure 3**, the highest offensive pollutants were garbage remnant and their fallaciously disposal with 80% and 71.1% of people giving them the highest score respectively. These high ranks for garbage related pollutants are not surprising when considering the stigma and association of the word garbage. This require increasing the garbage bins and the man power working on cleaning and emptying the bins, promoting awareness campaign is needed as well to educate the population about the pollution risks in general and specially the visual pollution.

Table1 Average offensive score for visual pollutant.

Offensive rank	pollutant	Average score
1	Garbage and boxes remnants in the walkways and curbside	9.44
2	Overfilled and dirty garbage containers	9.44
3	Long lines of vehicles	8.62
4	Excavation works & rubbles	8.4
5	Generators smoke, spilled fuel and appearance	8.35
6	Military vehicles and checkpoints	8.15
7	Beggars and street sellers:	7.91
8	Crossed over electric wires	7.73
9	Demolished buildings	7.42
10	Car parking in the streets and in green areas or in walk ways	6.66
11	Dead and badly trimmed tress	6.31
12	Irregular demonstration of goods	6.26
13	Large Advertising billboards	5.35
14	The irregularity of heights, design, materials and regression of buildings	3.26
15	Shops and supermarkets irregular billboards	2.97
16	Cellular phone internet Towers	2.35

The third rank was for long lines of vehicles resulted from checkpoints and intersections in this highly populated area with many of the governmental buildings specially the University of Baghdad. This high rank is in line with other studies like (Jones, 2006) , to overcome this problem reducing the checkpoints and activation of road rules is definite. The fourth rank was for excavation works and rubbles from the renovation of buildings (both governmental and private); this pollutant might achieve higher ranks if the municipality did not enforce some regulations on the ground. Generators and their different pollutants has the fifth rank with 73.33% of people considering it highly offensive, this is a

result of the regulation absence that regulate the installation and operation of these generators.

The sixth rank is very important because it declared that despite the fact of decades of militarization and wars that the Iraqi people had suffered, 71.11% of them are considering the military existence is highly offensive appearance. The reducing of these appearances is needed by reducing and intensive the checkpoints, movement prohibition of tanks and soldier carriers during the day and even in night crowded hours, decrease the vehicles and their armament of protection forces accompany the VIP's and the use of household like infra structures in these checkpoint instead of the military like ones.

The beggars and street sellers have the seventh rank with 68.89% of people listed it as highly offensive, this high pollutant rank is due to its effect on tourism and trading. Immediate procedures should be taken to activate protection social network, capacity building for new graduated students and finding hiring positions.

Crossed wires from the private electricity network had the eighth rank; this pollutant could have higher rank if it was in the eye level. Solving the electricity problem in the long phase and the using of large cables with sub circuit boards in the short phase may reduce the effect of this pollution.

The pollutants in ranks from nine to thirteen are in controversial situation, the scoring for these pollutants highly depends on cultural and educational background of people and the location of pollutant more than other pollutants because of most of these pollutants is a result of absence of services and\or legislation.

The ranks from fourteen to sixteen had the minimum scouring because of these pollutants are not in eye level and not considered highly eye and mind stressing issue.

Table 2 shows standard deviation values and Confidence interval with confidence degree of 99%, 95% and 90% which indicate that the results were satisfactory and the data was not highly scattered and they are close to the mean with adequate confidence intervals.

CONCLUSION

This research provides the public opinion about certain visual pollutants. Garbage, their disposal and storage areas took the first two places as the highest offensive pollutants. The people showed that they find long lines of vehicles, debris and generators appearance ranked third, fourth and fifth respectively .This research showed that more than 70 percent of people are against the militarization of society and they consider any existence of heavy military machinery or personal is highly offensive issue.

Other pollutants such as street sellers, beggars, and crossed wires took middle place and considered as moderately offensive.

Car parking in inappropriate places, badly trimmed trees, large billboards in the streets and the buildings criteria considered slightly offensive.

The shops billboards and cellular phone and internet towers were considered the least offensive pollutants.

This indicates the lack of municipality activity and the need of activate legislations and rules to terminate these pollutants such as building, transportation and protection social network laws.

Reducing the military appearances and the need of promoting awareness campaigns regarding the pollution in general and specially the visible pollution is very significant issue as well.

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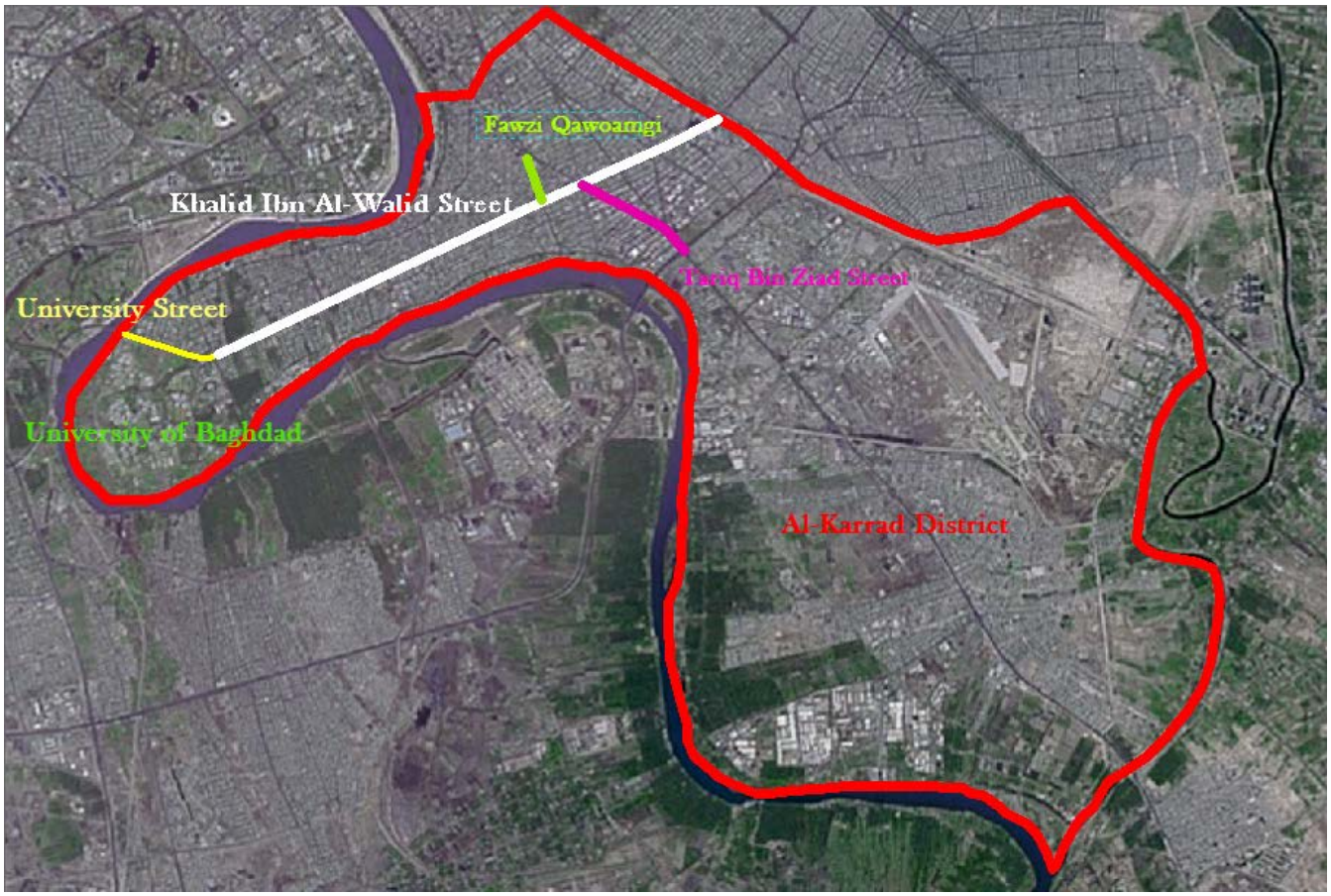


Figure 1. Satellite image of the study area Al-Karrada District with the main streets

Garbage and boxes remnants in the walkways and curbside

Overfilled and dirty garbage containers

Long lines of vehicles

Excavation works & rubbles

Generators smoke, spilled fuel and appearance

Car parking in the streets and in green areas or in walk ways

Demolished buildings

M1117 National Iraqi police Personal Carrier in Baghdad streets check point

Cell phones and internet Towers

Crossed over electric wires

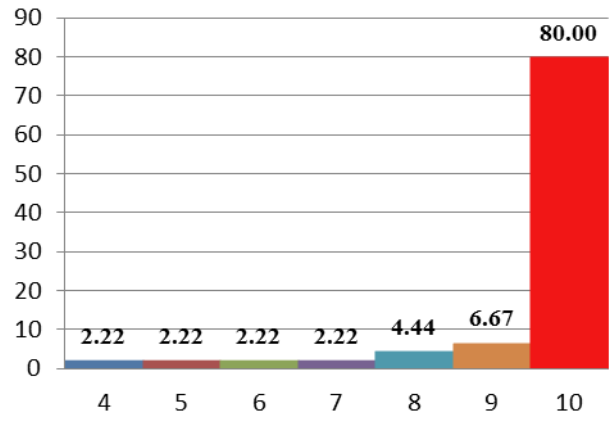
Dead and badly trimmed tress

Irregular demonstration of goods and shops billboards

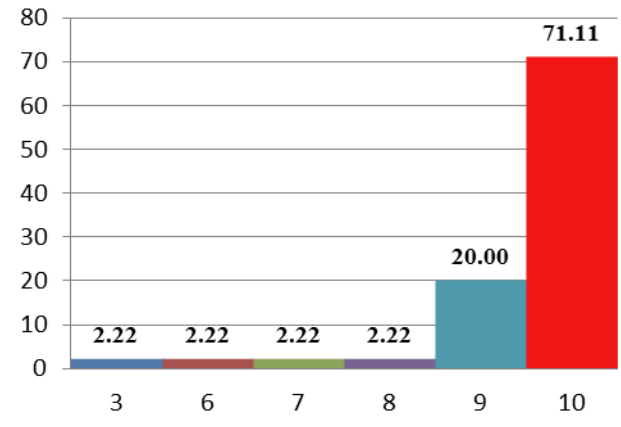
Large Advertising billboards

The irregularity of heights, design, materials and regression of buildings and irregular shops billboards

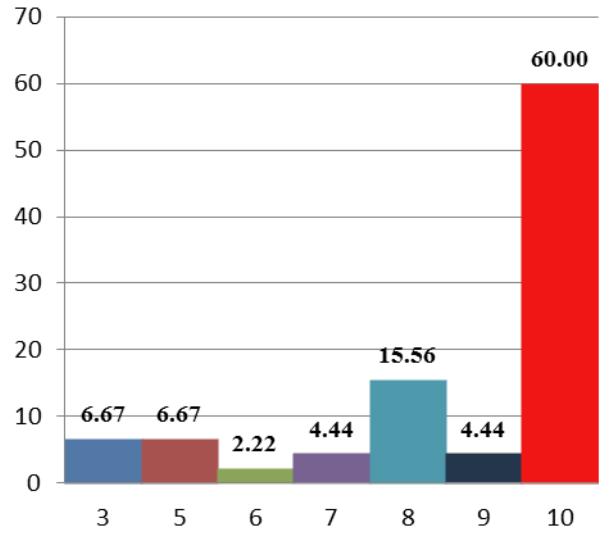
Figure 2. Pollutant Pictures used in the study (Taken by the Author).



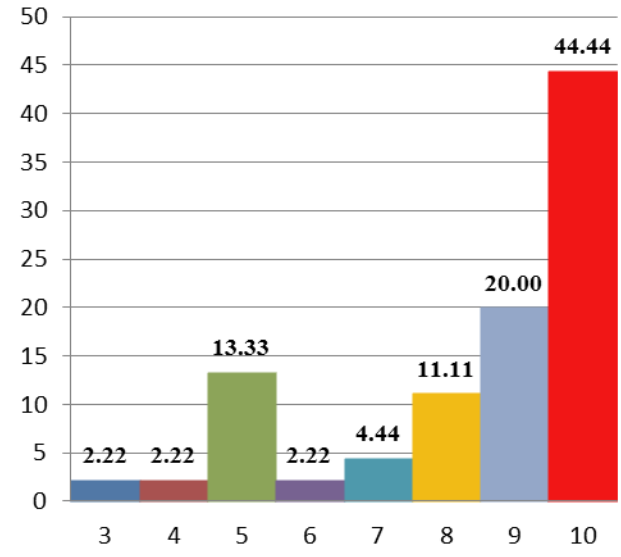
Garbage and boxes remnants in the walkways and curbside



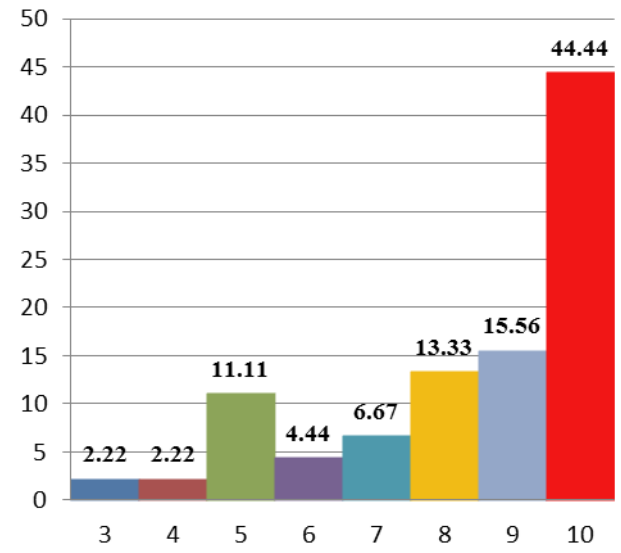
Overfilled and dirty garbage containers



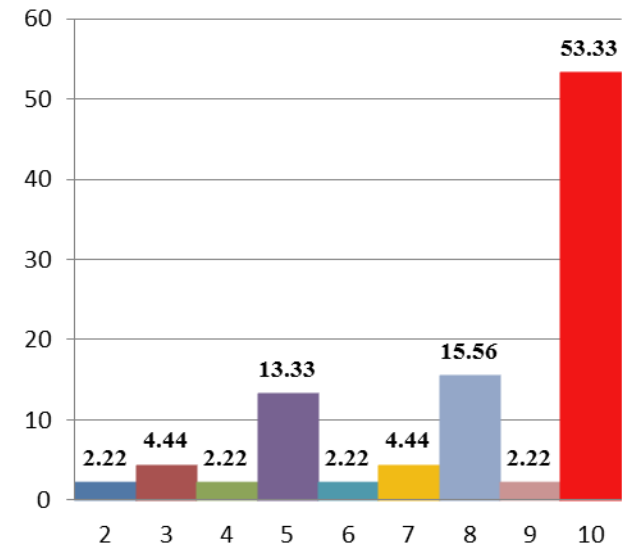
Long lines of vehicles



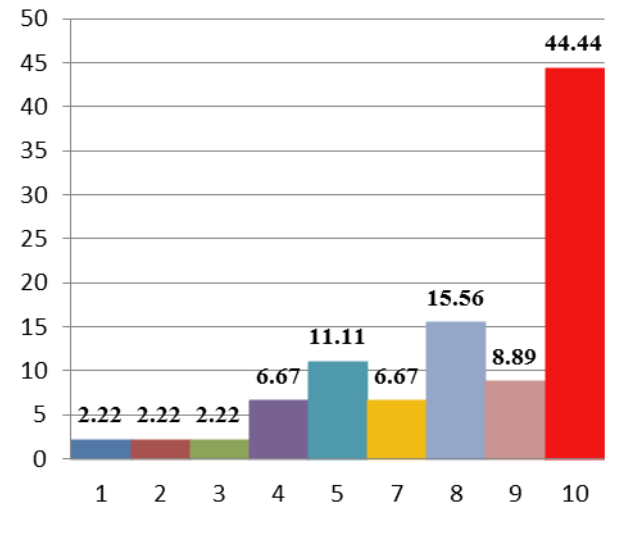
Excavation works & rubbles



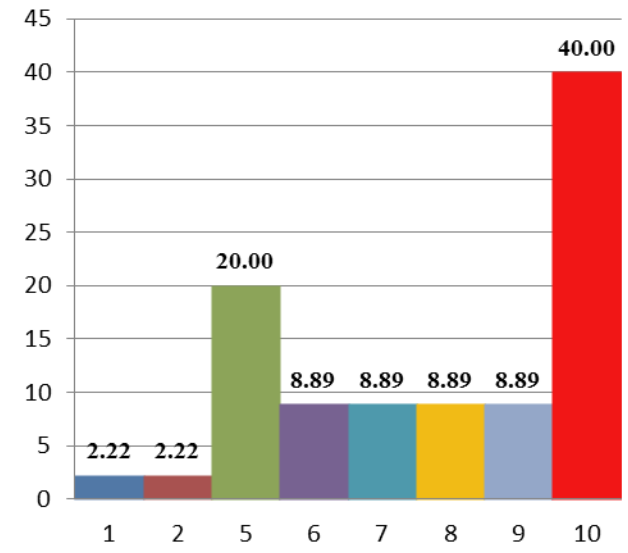
Generators smoke, spilled fuel and appearance



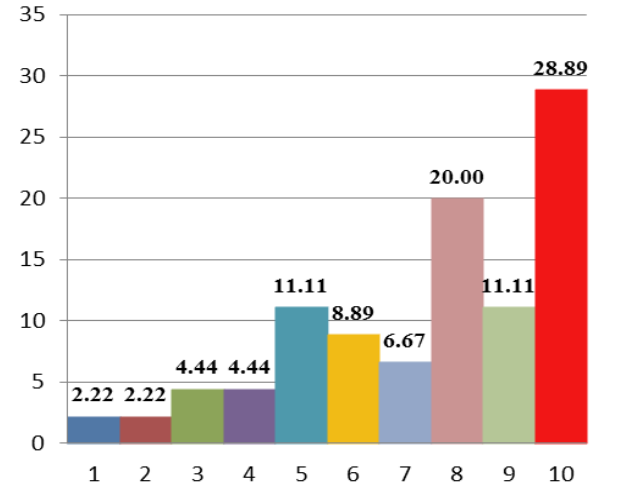
Military vehicles and checkpoints



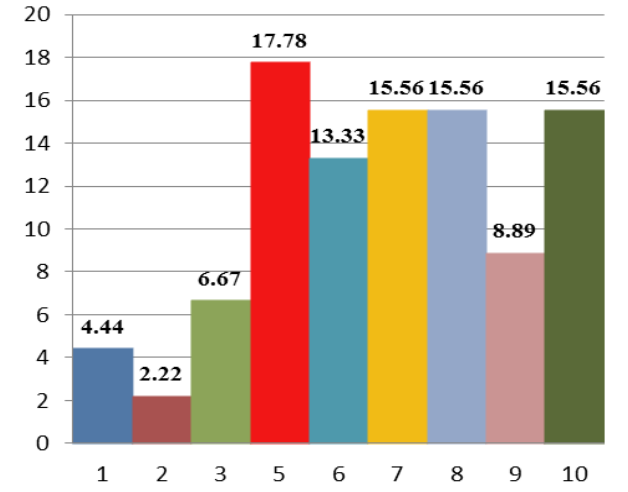
Beggars and street sellers



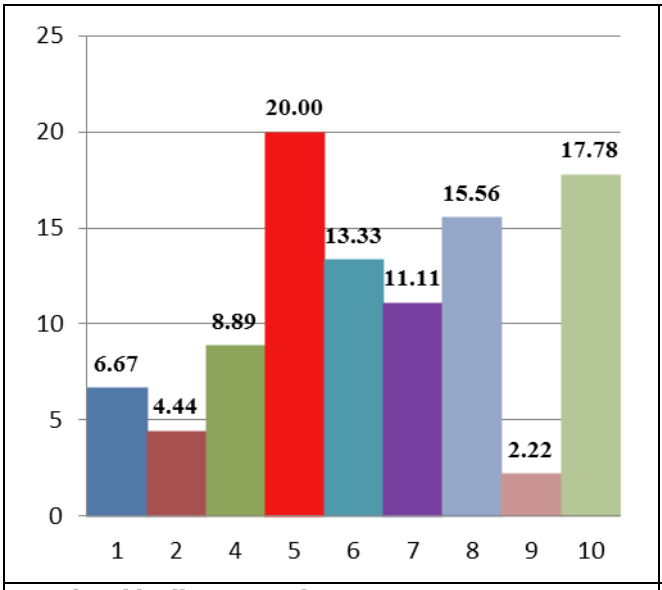
Crossed over electric wires



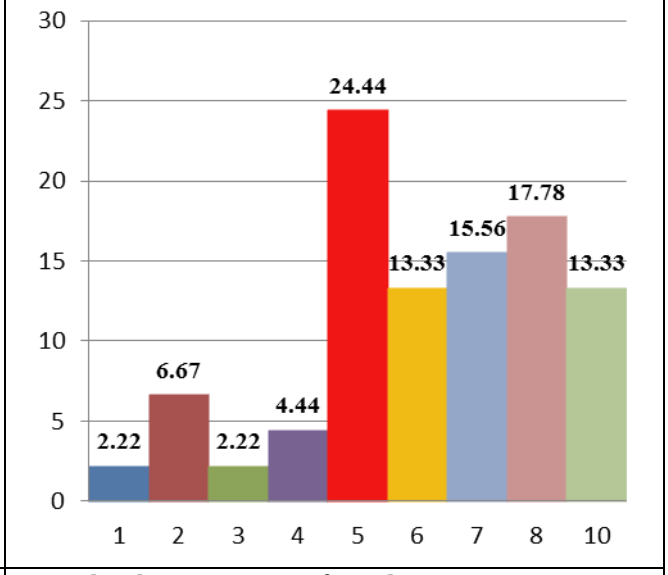
Demolished buildings



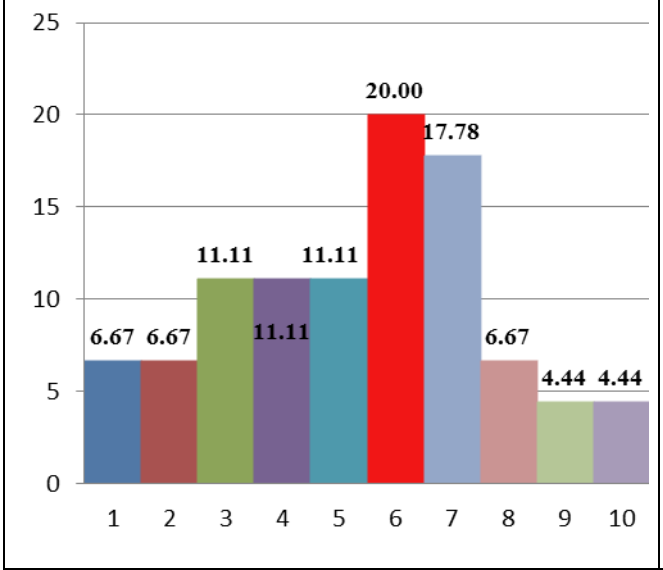
Car parking in the streets and in green areas or in walk ways



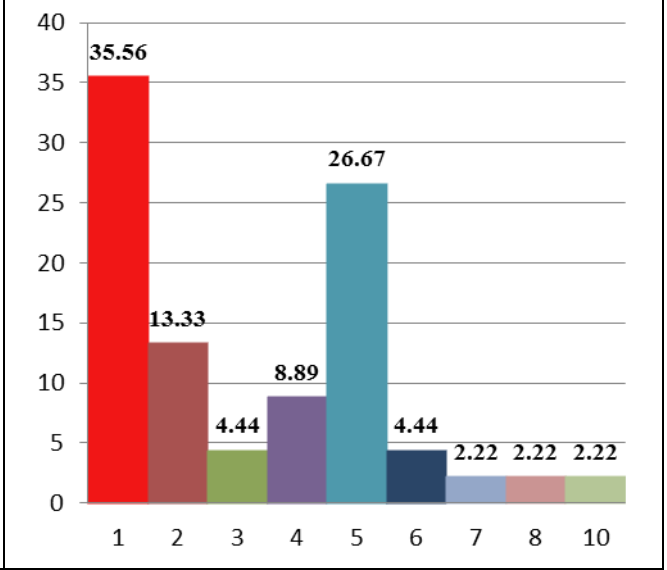
Dead and badly trimmed tress



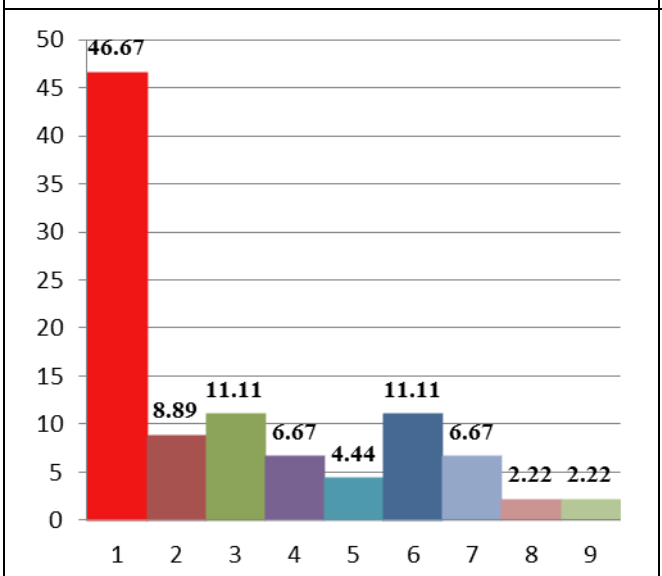
Irregular demonstration of goods



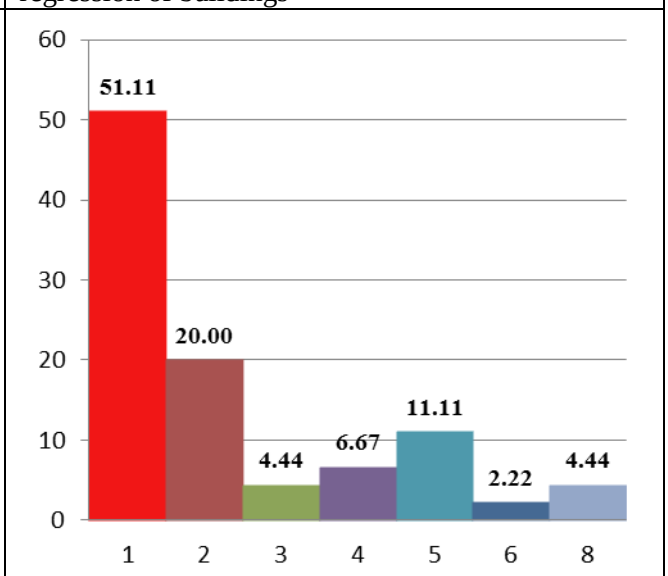
Large billboards in the median stripes



The irregularity of heights, design, materials and regression of buildings



Shops and supermarkets irregular billboards



Cellular phone Towers

Figure 3. The Statistical scouring for pollutants discussed in this research.

Table 2. Standard Deviation and Confidence interval with confidence degrees of 99%, 95% and 90% for visual pollutants

Pollutant	Standard Deviation	Confidence interval with confidence degree of 99%		Confidence interval with confidence degree of 95%		Confidence interval with confidence degree of 90%	
Garbage and boxes remnants in the walkways and curbside	1.36	9.6579	9.231	9.6069	9.282	9.5807	9.3081
Overfilled and dirty garbage containers	1.28	9.6446	9.2442	9.5968	9.2921	9.5723	9.3166
Long lines of vehicles	2.12	8.9538	8.2906	8.8745	8.3699	8.834	8.4105
Excavation works & rubbles	2.02	8.7166	8.0834	8.6409	8.1591	8.6021	8.1979
Generators smoke, spilled fuel and appearance	1.99	8.6682	8.0429	8.5934	8.1177	8.5552	8.1559
Military vehicles and checkpoints	2.40	8.5316	7.7795	8.4416	7.8695	8.3957	7.9154
Beggars and street sellers:	2.54	8.3096	7.5126	8.2143	7.6079	8.1656	7.6567
Crossed over electric wires	2.40	8.11	7.3566	8.0199	7.4467	7.9739	7.4928
Demolished buildings	2.47	7.8091	7.0353	7.7166	7.1279	7.6693	7.1752
Car parking in the streets and in green areas or in walk ways	2.43	7.0471	6.2862	6.9561	6.3772	6.9096	6.4237
Dead and badly trimmed tress	2.58	6.715	5.9071	6.6185	6.0038	6.5691	6.0532
Irregular demonstration of goods	2.28	6.6239	5.9094	6.5385	5.9949	6.4948	6.0385
Large Advertising billboards	2.33	5.7215	4.9895	5.634	5.0771	5.5893	5.1219
The irregularity of heights, design, materials and regression of buildings	2.25	3.6193	2.9140	3.535	2.9984	3.4918	3.0415
Shops and supermarkets irregular billboards	2.38	3.3502	2.6053	3.2611	2.6944	3.2156	2.74
Cellular phone internet Towers	1.91	2.6557	2.0554	2.5839	2.1272	2.5472	2.1639