

THE UTILITY OF GIS IN ANTISOCIAL EVENTS MONITORISATION

Constantin BOFU, Assoc. Prof .PhD.-“Gheorghe Asachi” Tehnical University of Iasi, constantinbofu@yahoo.com

Loredana CRENGANIŞ, Lecturer PhD.,-“Gheorghe Asachi” Technical University of Iasi, Romania, barganlro@yahoo.com

Horaşiu HOGAŞ, Lecturer Ph.D. –, „Gheorghe Asachi” Technical University of Iasi, Romania, hhogas@yahoo.com

Bogdan MANDACHE, Student –, „Gheorghe Asachi” Technical University of Iasi, Romania

Abstract: *This paper intends to analyze antisocial and criminal events in Iasi municipality assesses and finding potential factors that generate this phenomenon. This assessment was necessary to build databases of antisocial events; each event is recorded with all its significant data. For this work was needed antisocial collection events were classified into several types of offenses using online media.*

Keywords: *Crime, Hotspot, Geospatial Data, Database Design, Conceptual Modelling, Logical Design, Physical Design, Entity Relationship and Relationship Enforcement.*

1. Introduction

Every society is facing crime aspects; even the notion of ‘antisocial phenomenon’ is included in the very idea of society. As society cannot be if one or more individuals couldn’t respect the rules, it is inevitable that those individuals to cause crime scenes. Moreover, E. Durkheim considers that crime is a ‘natural phenomenon’ as long as it doesn’t pass several boundaries which may cause the malfunction of society and bad cohabitation of individuals. Because delicency is strongly connected to fundamental condition of surviving it includes several abnormalities that can offense collective feelings. It is paramount to adopt a social defense measure and to stop any form of bad behavior. Furthermore, the antisocial phenomenon represents the expression of a long series of bad actions which are in contrast with normal ways oh cohabitation in a family matter or in public/ private institutions.

Although the recognition and punishment of crime actions exists, there are several cultural differences in defining dangerous acts based on their intensity, critical and threatening levels.

The stage of a bad behavior becomes unsafe for the surrounding individuals depend on how permissive a society is. This is the reason why the law is in the impossibility to face all crime actions and its purpose is to maintain this antisocial phenomenon in a tolerable stadium. Crossing this line of tolerance can be an alarming sign of tension in a society and the start of possible crises of public institutions.

During this presentation we will outline a perspective of antisocial by highlighting the evolution of this phenomenon during 2 years (2011- 2013) and witch will express the data analysis already have.

2. Presentation of the study area, materials and methods

Presentation of the study area

For our presentation we chose, as a study zone, our county Iasi because its high level of development and it is the main urban center in North- eastern Romania.

Neighbours: North- Botosani (130 km)

North- East- Suceava (150 km)

West- Neamt (100 km)

South- Vaslui (70 km)

South- West- Bacau (120 km)

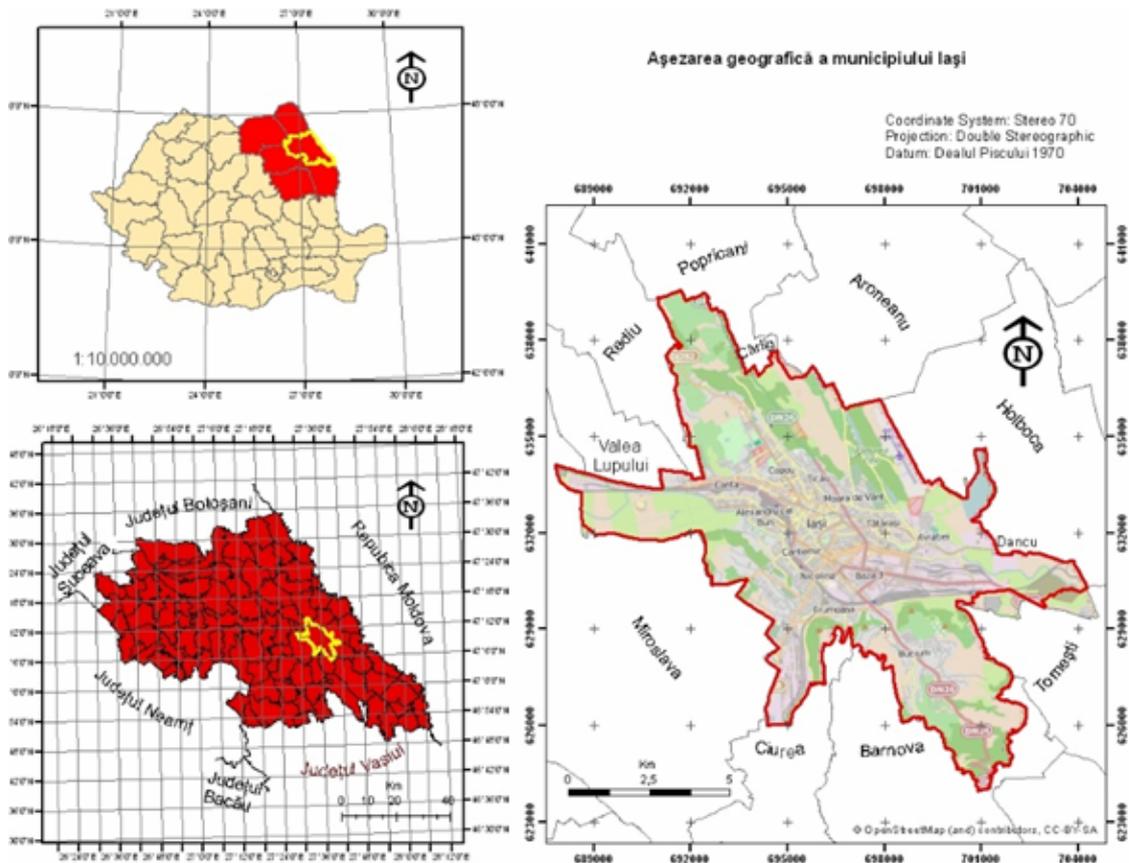


Fig. 1. Geographical position of our county

For this evaluation we built a database of all of antisocial events about homicides, robberies, domestic conflicts, car accidents, drugs, etc. Each event was monitored with all the significant information (date, location, authors, persons involved) and geographical information: the limits of our study zone, police sections, hospitals, schools, parks, bars, cafes, restaurants, clubs, banks and public transportation stations.

The majority of our events have temporal references and spatial references and the information can be geocoded. The information was also dereferenced and then introduced in different investigation reports or in high advanced analysis.

The quality of georeferencing an incident can offer us several facilities like: identification of the crime scene, who was the author of the crime, the victim, which possible

victims can be, why it is happening in a certain region, identification of the cause and where are other possible crime zones.

All the information regarding the database were purchased from mass-media and websites (2011-2013)

The boundaries of our study area were uploaded from website open source. The romaine boundaries were digitized from topographic maps (scale 1:100 000) and then updated using GPS measurements and high-resolution satellite images.

The boundaries of our county Iasi were also digitized from topographic maps (scale 1: 100 000), CLC 2000 information were brought in Stereo 1970 and then redistributed as a national mosaic.

Urban zones, parks, museums, schools, public institutions, police stations, schools, parks, universities were vectorised in ArcMap programmer. The information needed is presented in Table 1.

Table 1.

Data	Source	Format	Type	Sistem de coordonate
Antisocial events	http://www.ziarulevenimentul.ro/ , http://www.bzi.ro/ , http://www.ziare.com , http://www.ziaruldeiasi.ro ,	ShapeFile	Point	Stereo-70
Limits of our study zone	http://earth.unibuc.ro/	ShapeFile	Polyline	Stereo-70
Urban zones	http://ro.wikipedia.org/wiki/Cartiere_din_Ia%C8%99i	ShapeFile	Polygon	Stereo-70
Recreation areas	https://www.google.ro/	ShapeFile	Point	Stereo-70
Public locations	Police stations : http://www.politiaproximitate.ro/zone_de_responsabilitate.html Hospitals, school https://www.google.ro/ Public transportation : http://www.ratp-iasi.ro	ShapeFile	Point	Stereo-70

Analyzing criteria type factor and realization of maps

For the purpose of this presentation there were several criteria taken into consideration:

- The temporal distribution of accidents (evolution of events during 2011-2013, evolution of antisocial events according to time zone)
- The spatial distributions (parks, schools, museums, cafes, restaurants)
- The event distribution according to age and sex factors. The purpose of this analyze was to show a connection between these location and antisocial events.

In the next figure it can be observed that the means of public transportation and stations are the most common location where antisocial event can take place (figure 2).

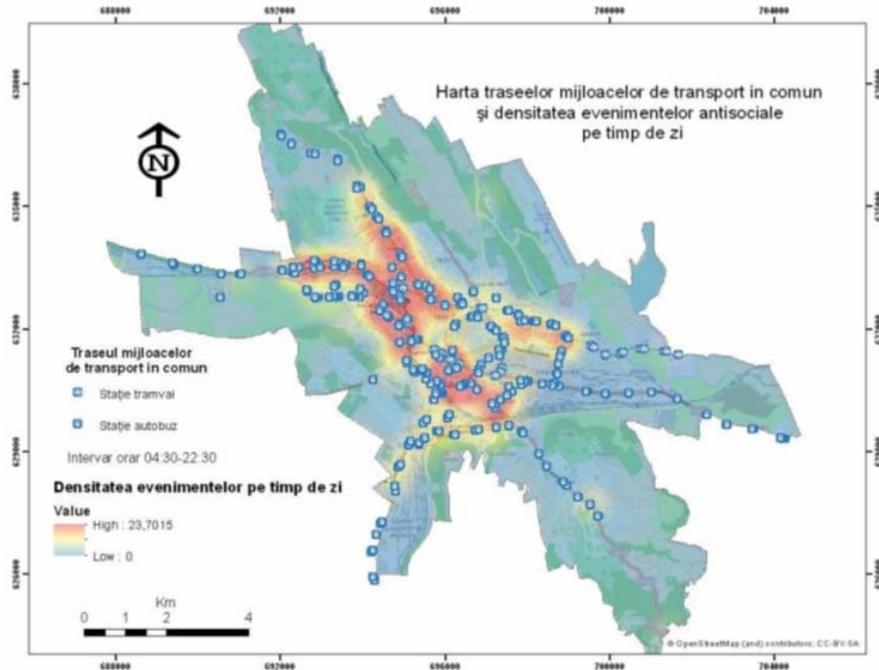


Fig. 2. Map of means of public transportation

In (figure 3) it can be seen the distribution factor influencing crime rates in Iasi. For example, it is common knowledge that places for tourists are the best targets for robberies.

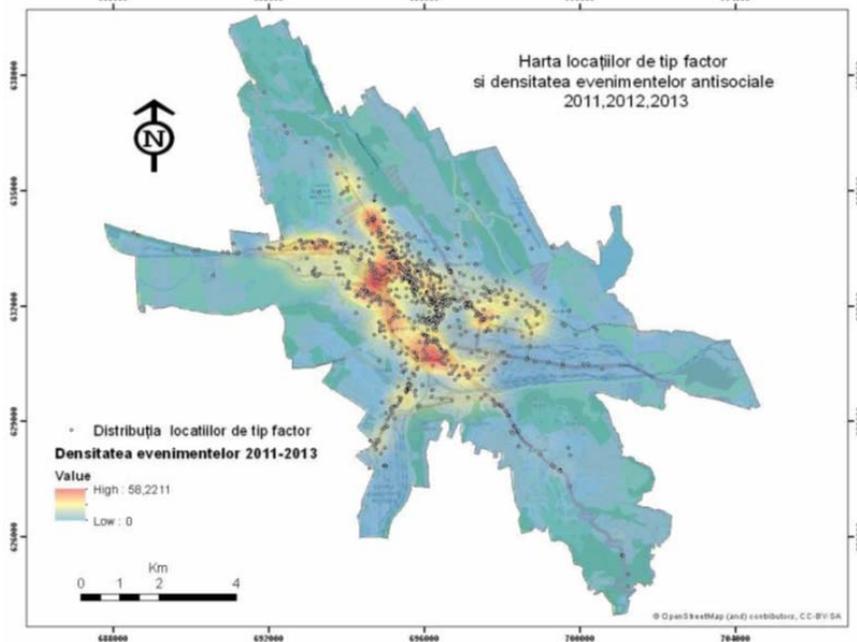


Fig. 3. Map of factor areas

The relationship between overcrowded zone and the rate of antisocial events

From the superposition of crowded urban zones and the antisocial events it results that the majority of crimes are committed in central neighborhoods because of the economical increase (figure 4).

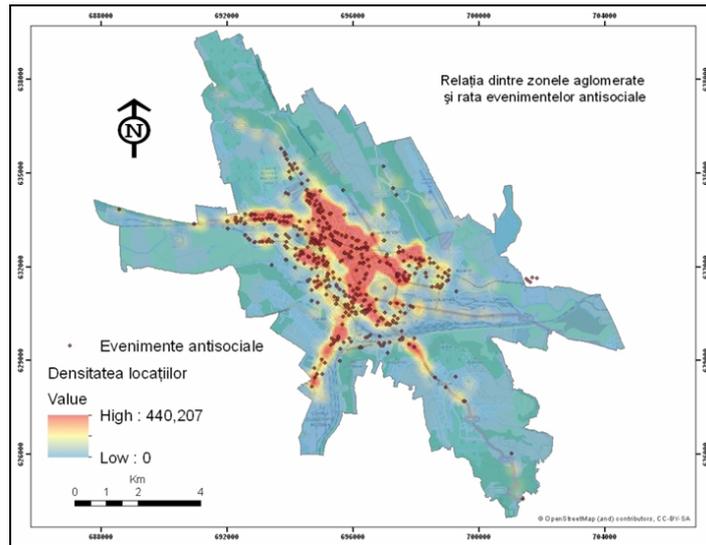


Fig. 4. The relationship between overcrowded zone and the rate of antisocial events

The rate of the persons who commit antisocial events

Therefore, all the law breakers are from all social and professional categories besides the sex, age, intellectual and cultural differences.

As the graphic shows, the antisocial youth event rate is rather high and it seems it may decrease with age. The same study shows that males are people who often violate the law (figure 5, 6).

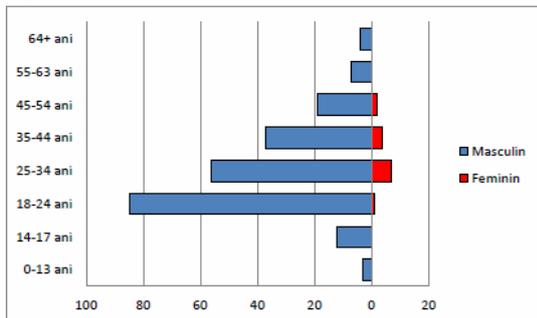


Fig. 5. The rate of lawbreakers considering sex and gender

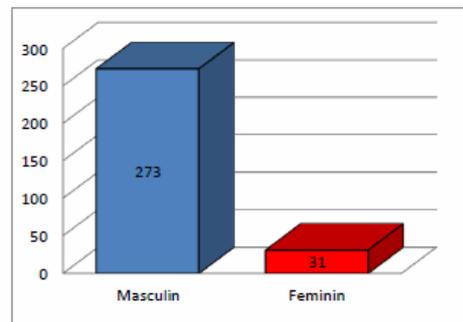


Fig. 6. The rate of lawbreakers considering gender

The rate of victims

Our study shows that the risk of violence is higher in men than women. Regarding female gender the victim rate varies but it starts ascending at the age of 18-34 (figure 7,8).

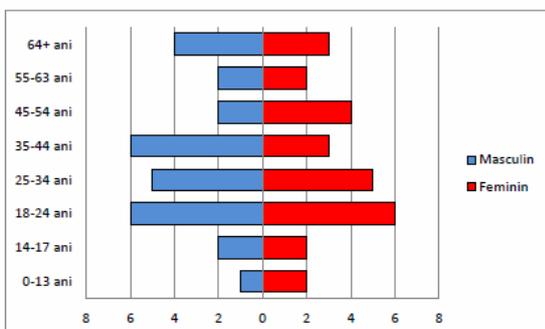


Fig. 7. Graphic of victims considering age and gender

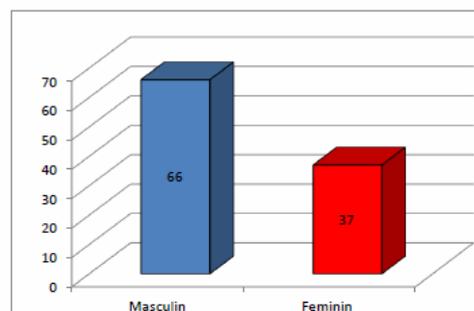


Fig. 8. Graphic of victims considering gender

3. Conclusion

According to our study the main conclusion to diminish the antisocial events rate is the establishment of new police stations in the adjacency (figure 10).

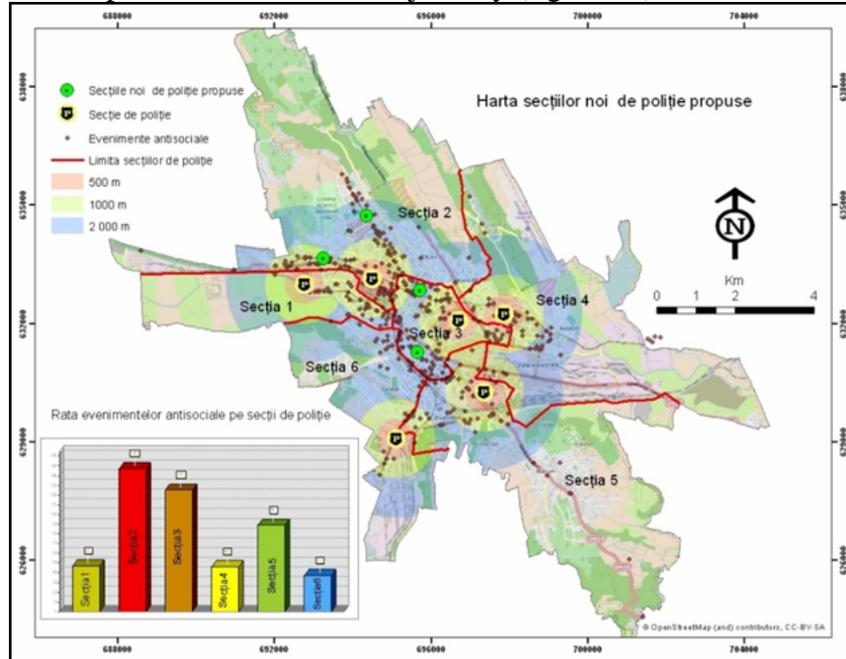


Fig. 10. Graphic of new police stations

The most suitable locations for building the police station are selected based on values of crime and the distance between each police station. From our studies, the section with the higher crime rate was section no.2- 147, and then section no 3 – 125, 5-89, 6-37. The majority of events were the most crowded zones of our county.

4. References

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