

# THE PREVENTION OF HUMAN TRAFFICKING BY GEOGRAPHIC INFORMATION SYSTEMS TECHNOLOGY

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**ABSTRACT:** *This paper presents the general concepts about human trafficking, prevention and methods of fighting against it, geographical information system concept and how such a system might respond to requirements of its users in order to be useful in preventing and combating this crime are also described. An efficient implementation of this system allows understanding its potential, providing effective ways of performing operations. For example, organizations that fight against human trafficking as well as competent intervention authorities as users of the system will be able to input, update and continuous improvement of data, according to the results of GIS, the latter may arise in disadvantaged areas, with the highest risk, and constantly check and control the risk categories of people. The paper concludes that in Romania is needed considerable improvement of this work to prevent and combat trafficking and effectively implementation of GIS technology can be that improvement in our system.*

**KEYWORDS:** *Geographic information system, databases, human trafficking, prevention, control*

**JEL CLASSIFICATION:** *K 14, K 49*

## 1. INTRODUCTION

Nowadays, human trafficking is not a new face of social reality, but is a very unfortunate one. Firstly, human trafficking is considered to be a complex and serious problem related to human rights, although this phenomenon has manifested itself throughout history in various forms, such as for example the slave trade, as a legal activity, this phenomenon involves activities of a criminal misconduct to recruit, transport and sale of people, in degrading and inhuman conditions of exploitation.

Literature comments on this phenomenon as: human trafficking is an underground phenomenon with global dimensions, a serious violation of human rights, an economic and social phenomenon with consequences for the entire society. Human trafficking is a

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criminal activity which make a large profit with low risk, which has serious consequences for the safety and welfare of its victims<sup>1</sup>.

So trafficking is considered criminal offense, the lawgiver specifies: *Is considered crime of human trafficking the recruitment, the transportation, the transfer, the harboring or the receipt of persons, by threat, violence or other forms of coercion, by abduction, fraud or deception, authority abuse or by taking advantage of a person's inability to defend himself or to express his will, or by offering, giving, accepting or receiving of payments or benefits in order to obtain the consent of the person who has authority over another person, with the purpose of exploiting that person, and is punished with imprisonment from 3 to 12 years and interdiction of certain rights*<sup>2</sup>.

Although this crime is widespread throughout the world and all states are alarmed for combating and prevention of the phenomenon, governmental and non-governmental organizations, UNESCO with the authorities involved in this struggle, however, human trafficking occurs on a scale that can not be accurately measured, especially in less economical and social developed countries. Criminals have "great deal" in these countries, we believe that they selectively search for victims with a great attention to avoid the authorities that supervise these crimes, therefore any process, system, method of control and mitigation of this risk should be continuously improved with information from any field or news published in any field. Such information could be implemented in our country (although perhaps more difficult) in the form of a computer system to support activity of supervising, control, prevent and combat trafficking.

## 2. GEOGRAPHIC INFORMATION SYSTEMS. CONCEPT AND SCOPE

The literature has almost unanimously presents geographic information systems (GIS) as an organized collection consists of hardware, software, geographic data and personnel, for acquisition, storage, updating, processing, analysis and display of geographic information in accordance with the specifications of a application domain. Concerning this definition must be specified following<sup>3</sup>:

- *the „hardware” component* means both computing platform and peripheral equipment for data entry and for results communication (display);
- *the „software” component* should provide a set of basic functions of general application, and at the same time to allow adaptation / extension to the specifics of any application; the functions provided should allow both vectorial analysis and automated cartography and image processing and spatial modeling (raster), together with database management and multimedia access;
- *the „geographical data” component* is decisive: the most expensive and long-lived component of a GIS is geographic database. Data entry is an operation of a considerable importance and it can be done by: digitizing, scanning / tracing, field measurements (total station), image processing of remote sensing, digital photogrammetry, conversion of other formats (including CAD);

<sup>1</sup>Flavius Vasile Onofrei, TRAFICUL DE PERSOANE. Practici și resurse pentru combatere și colaborare

<sup>2</sup>Law no. 678/2001, Article 12 paragraph no. 1

<sup>3</sup>Florian Petrescu, Sisteme informatice geografice în urbanism și amenajarea teritoriului

• *the „staff” component* means a team of three specialist categories: those that implement the basic software, those who create and maintain digital database, and those who use the software and geographic data to solve practical problem.

GIS technology is useful in any field of activity that is based on spatial information processing. The most common areas where this technology is applied are urban planning, regional planning and public administration, surveying, environmental protection, utility networks, transport and telecommunications, statistics, public records, census, demographics, etc. Starting from the last areas listed, the implementation of this technology can be extended to prevent human trafficking.

### 3. PREVENTION OF HUMAN TRAFFICKING BY GEOGRAPHICAL INFORMATION SYSTEMS TECHNOLOGY

Geographic Information Systems integrates complex, homogeneous, distributed database and decision support facilities, this could be a crucial aid in the management of any complex organization with multiple, interdependent tasks. Moreover, in preventing human trafficking, geographical information systems is a management and planning tool that divides and structures the activities projects of prevention this brotherhood, in particular by linking existing data sources. So the success will be the ability of this program to solve specific problems, but only after completing the database.

GIS technology uses spatially referenced database (by coordinates), a proper treatment system, equipment for the placing, storing, updating and displaying spatial data, and specialized personnel also. Methods for constructing a database are presented in the table below.

*Table 1- Methods for building GIS databases*

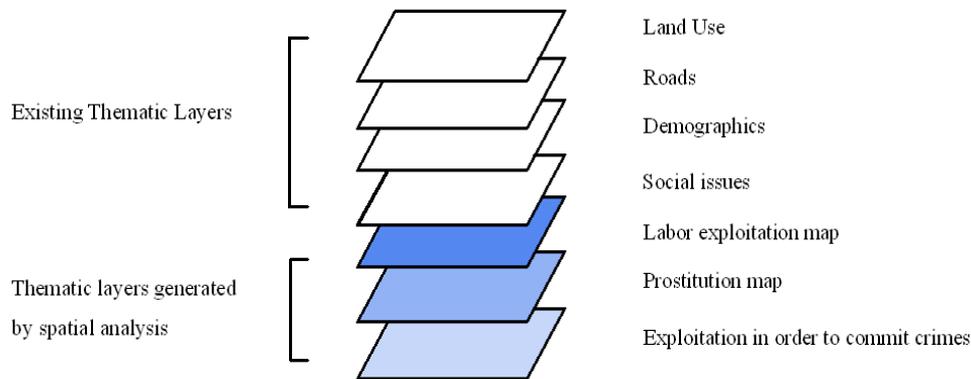
Data sources	Used methods
Manuscripted maps and plans	Digitization or scanning and tracing
Satellite, aerial images	Classifications files
Digital data produced by CAD systems or automatic mapping	Import
Field Measurements: - Information stored as ASCII files - Manuscripts	Direct text file reading Coordinate input from the keyboard
GPS	Import
Tables, spreadsheets (dBASE format)	Direct dBASE file reading

*Source: Petrescu (2007)*

Filling the database can be done in several categories. For example, data can be collected from victims of trafficking about the period before the crime (nationality, sex, origin, native place - country / town, age, family situation, marital status, children, education level, occupation, history of violence, if he was a victim of trafficking more than once ), recruitment, and traffic period and the period of assistance, also.

In a GIS each unique piece of mappable information is kept in its own place on the computer. In GIS terminology, this unique piece of mappable information is referred to as a layer. We can create hundreds of layers of information. Some of these layers are as follows (see diagram below): Land Use, Roads, Demographics, Social issues, Labor exploitation, Prostitution, Exploitation in order to commit crimes. All cartographic information is contained in these layers.

#### GIS Database: Example



Any GIS should include facilities to meet the following five generic questions:

- **LOCATION:** "What is at ...?" This question seeks to identify the objects / phenomena located in a specific geographical location specified by name, street address or geographical coordinates.
- **CONDITION:** "Where is ...?" This question aims at finding the exact position of an object/phenomenon or a specified set of requirements (eg. minimum of 2,000 square deforested area with soil suitable for construction of buildings, located at less than 100 m of a road).
- **TRENDS:** "What has changed since ...?" This question aims to reveal the changes occurred in a geographic area over a period of time.
- **SPECIAL:** "What features are manifested in the area ...?" This question requires a complex analysis such as searching for cause-effect correlations (eg. cancer is a major cause of death for residents near a nuclear power) or faults occurring at a time in an area with known characteristics.
- **MODELING:** "What would happen if ...?" This question involves a comprehensive analysis aimed at anticipating the impact of an event (adding / removing / changing an object / phenomenon) on the environment.

We believe that preventing and combating trafficking in persons, due to the advanced event reached today is very difficult. Due to this advanced level may not even know

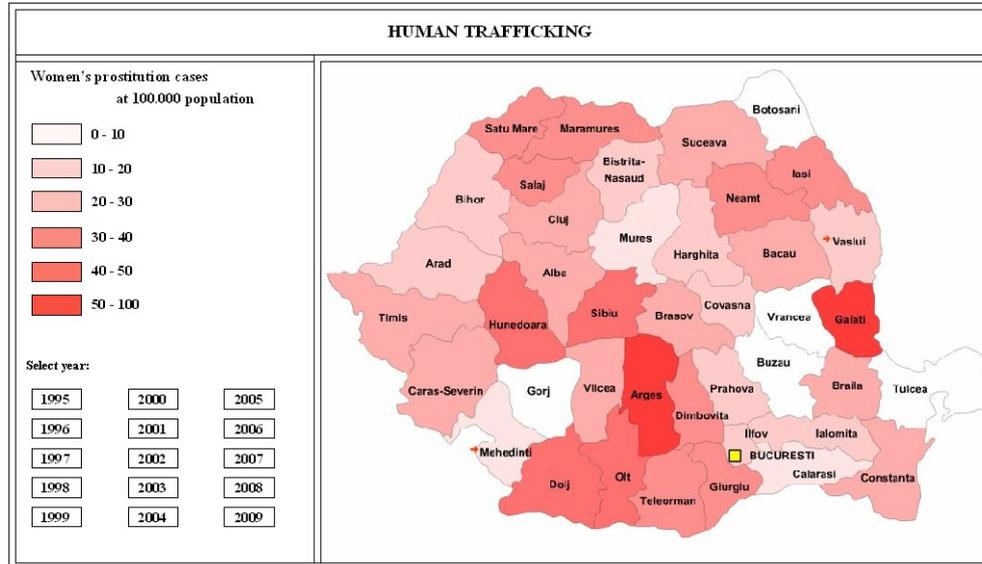
exactly what would be the best solutions to prevent or reduce this phenomenon. Against this serious background of civil society we suggest the attempt to implement such solutions for combating that by its ability to continuously improve, in the future lead to a significant reduction of the crime.

This would be possible by the very efficient implementation of a geographic information system built to prevent human trafficking. Effective implementation of this system allows understanding its potential, providing effective ways of performing operations. The complexity of such a GIS differs for example of the complexity of a GIS devoted to other areas such as management and development of urban networks and urban and regional planning by the fact that the last listed include a large data, continually updated information collected only by companies that manage these. While in GIS software to prevent human trafficking, this information may be fewer than the previous ones, but its complexity can be given by the fact that for data collection must work together and collaborate many organizations with the competent authorities in the fight against this crime.

These data can be collected from people who have been victims of human trafficking, as we mentioned above and people who were tangent with this phenomenon, or public authorities. Based on these, statistics will be done by the information system according to various criteria and the areas where the level of crime on that criterion or that area or even the link between the two is high. Organizations that fight against human trafficking as well as of the competent intervention authorities (police, gendarmerie) as users of the system will be able to input, update data and continuous improvement, based on the results of GIS, the authorities may arise in disadvantaged areas, with the highest risk, and constantly check and control the risk categories of people given by the statistics in GIS. For example, recruiting girls from disadvantaged socio-economic area, aged between 16 and 20 years, in order to work abroad, and finally some of them to engage in prostitution. Due to the high frequency of occurrence of this phenomenon, following the introduction and analysis, GIS systems can alert the intervention authorities on the area, age, gender and purpose of departure abroad, being able to intervene during the briefly to remove this phenomenon. Without advanced technology such as geographic information systems, which enable a preventive warning, this risk could not be seized in time for various reasons, following that the measures delay too long for a real and significant decrease.

For detailing of what is said above and to help this example, we built a part of that example, hypothetically, but possible, as might be presented in a geographic information system.

Fig. 1. Hypothetical example of presentation of human trafficking



Note: This example is purely hypothetical, listed with the purpose to have a specific view of function of geographic information system, data is not correlated with the reality of legal practice.

Our other examples in this paper are made from a very small scale, with a view to better understanding of GIS technology. But starting from an easy example, these systems can become a solution in taking measures to prevent human trafficking, because it can expand to meet specific objectives and user requirements.

#### 4. CONCLUSIONS

Human trafficking has become a common phenomenon both nationally and globally. The dynamics of the spread of this phenomenon in recent decades has dramatically increased especially in weak developed countries. Although Europe is looking for ways to improve laws aimed at the offense and resorting to their unification in order to act in any state in a uniform manner, however, prevent human trafficking is hard. On the national level, is required a considerable improvement of the activities to prevent and combat trafficking of persons, because we are a country targeted by criminals, especially due to lower living standards and socio-economical underdevelopment.

Effective implementation of GIS technology can be that improvement in the Romanian system. For prevention of human trafficking, the geographical information systems could be a management and planning tool that divides and organizes the activities of the crime prevention projects, in particular by linking existing data sources, providing quick and concrete statistic results on which the competent authorities can intervene in time in areas with high risk of crime.

GIS is a young field and the practical application of its results is still done in a fairly slow pace, but these systems are being improved constantly, depending on user needs and can expand to really lead to a successful project.

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