

WAYS OF ANTHROPIC INTERVENTION IN THE SOMEȘULUI PLAIN

Grigore Vasile HERMAN

University of Oradea, Department of Geography, Tourism and Territorial Planning,
1 Universității St., 410087, Oradea, Romania, e-mail: grigoreherman@yahoo.com

Abstract: As a result of increasing anthropic aggression on the natural framework of the Someșului Plain, this present study has the purpose of identifying, quantifying and assessment of the human settlements as ways of anthropic intervention. In order to achieve this purpose, we have tried to answer the following questions: How much?, Where?, How? and When?. Thus, in the Someșului Plain there have been identified 125 human settlements whose impact vary according to a series of parametres and indicators out of which we mention: number of population, density of population at the hearth of settlements, density of settlements, structure of the hearths etc.

Key words: environment, human settlements, infrastructure, density of population, structure of the hearths

* * * * *

HUMAN SETTLEMENTS

The edification of the human settlements in the Someșului Plain represent one of the first ways of human intervention on the structure and functionality of the natural framework. Human settlements appeared as a result of territorial unification and grouping of several dwellings and as a natural human necessity to get shelter from the harsh weather. Dwelling, with everything that concerns it, constitutes the foundation of human settlements and the most elementary and important form of pressure on the natural framework.

Through years, the impact of human settlements on the natural framework has progressively developed according to human possibility of intervention. At present, in the Someșului Plain there are 125 human settlements, of different ranks and sizes, from hemlets (Cucu and Eteni) to big cities (Satu Mare, Carei and Seini). All these form an important component of the environment and, at the same time, a true center of initiative and command of all the anthropic interventions.

The impact of human settlements on the environment is conditioned by the following factors: number of settlement population, density of population in the hearth of settlements, degree of concentration and dispersion of the settlements in the area, structure of the hearths and the management of the belonging area (Mac, 2003; Herman, 2009).

NUMBER OF THE POPULATION OF THE HUMAN SETTLEMENTS

It constitutes the first and the most important variable on which the anthropic impact on the environment depends. This is because the existence of each individual implies a certain space (for relaxation, entertainment, work etc.), named vital space in which he or she lives. As a result, the more human individuals in the Someșului Plain, the higher the their pressure on the respective space.

Having in mind that the area of the Someșului Plain, as well as of the area of the entire Earth is limited, one poses the question of its limited endurance as regards number of population. Any numeric growth automatically determines the growth of population density on the unit of surface and, indirectly, the growth of anthropic pressure on the respective unit. Through years, the population of the Someșului Plain has continuously grown till 1992, when 326,029 inhabitants were recorded. Since then, the number decreased constantly with an annual average rate of 0,8%, thus at the census in 2002, the population of the Someșului Plain recorded a number of 301,006 inhabitants.

Irregularly scattered over 125 settlements, the 301,006 inhabitants constitute the main factor of pressure on the environment.

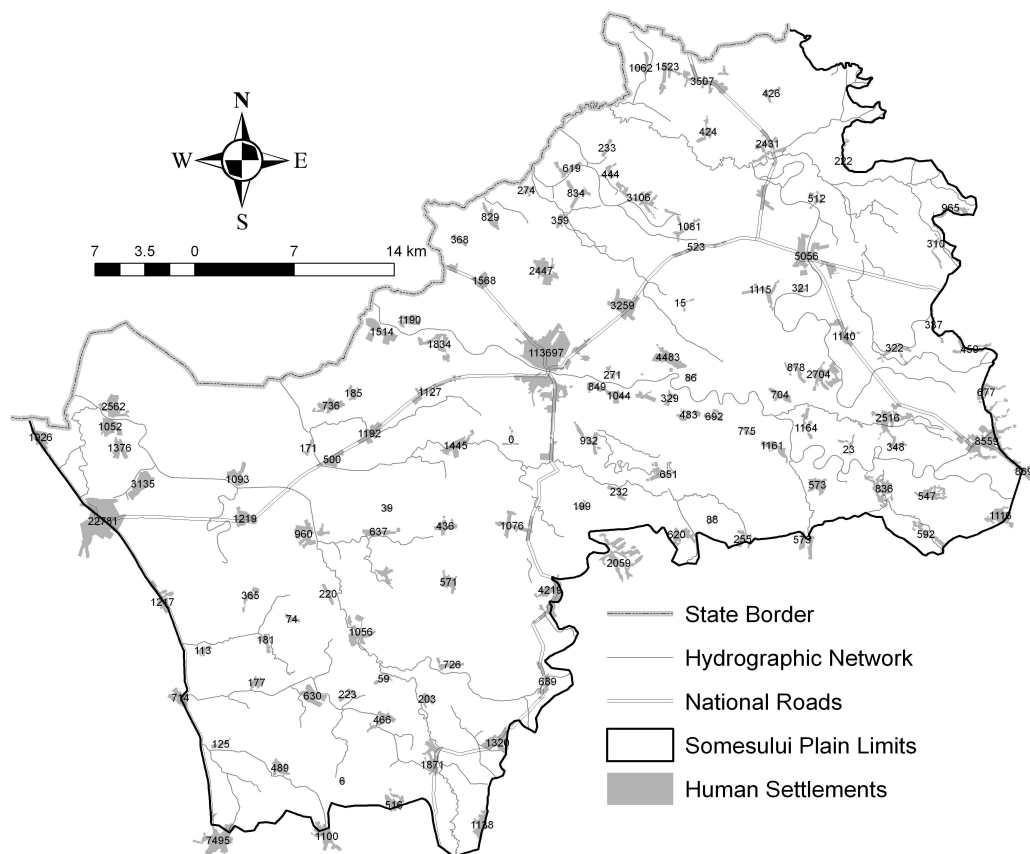


Figure 1. Numeric distribution of the population of the Someșului Plain in settlements
(Source: General census of population and the inhabitants of Romania in 2002)

From the numeric distribution of the population of the Someșului Plain in settlements (figure 1), one can come to the conclusion that the highest pressure on the natural framework is put on, in decreasing order, by the following settlements: Satu Mare (113,697 inhabitants), Carei (22,781 inhabitants), Seini (8,559 inhabitants) and Tășnad (7,495 inhabitants). At the other end, we have Cucu and Eteni with 0 inhabitants, followed by Ganaș (6 inhabitants), Vânătoarești (15 inhabitants), Lunca Apei (23 inhabitants), Aliza (39 inhabitants) etc.

From what we presented above, we can conclude that: the more inhabitants of an area, the higher the pressure of the respective area on the environment. Starting from this simple reasoning, we have produced a map of the impact of human settlements in the Someșului Plain on the environment (figure 2).

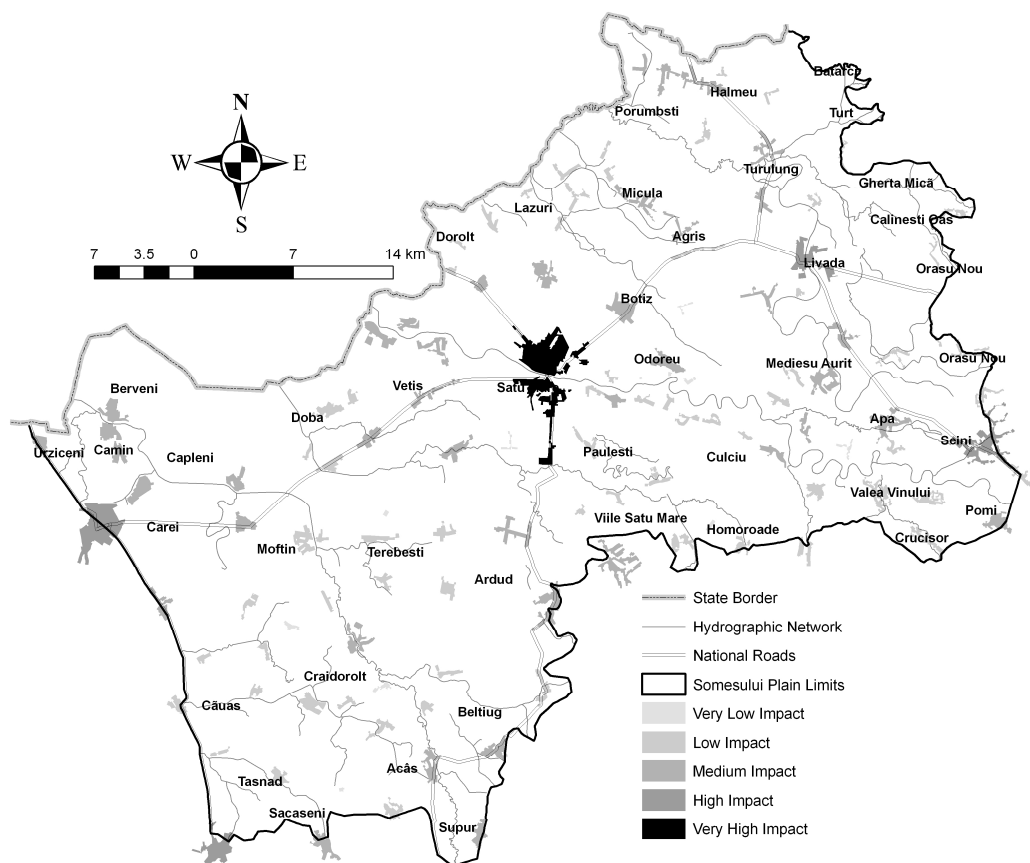


Figure 2. The impact of the settlements in the Someșului Plain
(Source: General census of population and the inhabitants of Romania in 2002,
County Department of Statistics, Satu Mare)

Here we have identified between five ways of impact of the human settlements, according to the number of inhabitants as follows:

- settlements with very low impact, between 0 and 100 inhabitants;
- settlements with low impact, between 100 and 1,000 inhabitants;
- settlements with medium impact, between 1,000 and 10,000 inhabitants;
- settlements with high impact, between 10,000 and 25,000 inhabitants;
- settlements with very high impact, over 25,000 inhabitants.

From „The percentage distribution of the settlements in the Someșului Plain according to impact” one can conclude that the impact of human settlements according to the number of inhabitants is low and very low, 64 %, which means that a number of 80 settlements in the Someșului Plain have under 1000 inhabitants.

Settlements with medium impact have a percentage of 33 %, in this category we have 41 settlements. most of them being main villages.

The cities of Carei, Seini, Tășnad și Livada belong to the category of settlements with high impact on the natural framework, but whose influences are felt on a narrower area, being more local.

The municipality of Satu Mare is the only settlement with very high impact. This urban centre is a generating source of deep changes in the structure of the environment, its influence being visible on a larger area, surrounding it.

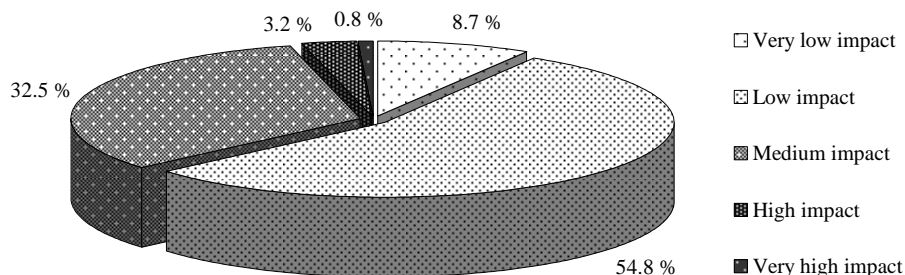


Figure 3. The percentage distribution of the settlements in the Someșului Plain according to impact

DENSITY OF POPULATION IN THE HEARTH OF SETTLEMENTS

It is an important indicator of the pressure of human settlements on the natural framework, it giving information on the degree of constructions concentration, on the features of the settlement, and not to mention, their structure (Nicoară, 1999; Erdeli and Dumitrache, 2003).

The density of the population in the hearth of the settlements depends on a series of variables influenced by a long historical evolution. Among the variables that influenced the density of the population in the hearth of the settlements in the Someșului Plain, we mention: the general density of the population, the agricultural land, the sources of water and the existence of means of communication (Posea, 1997; Pop, 2005).

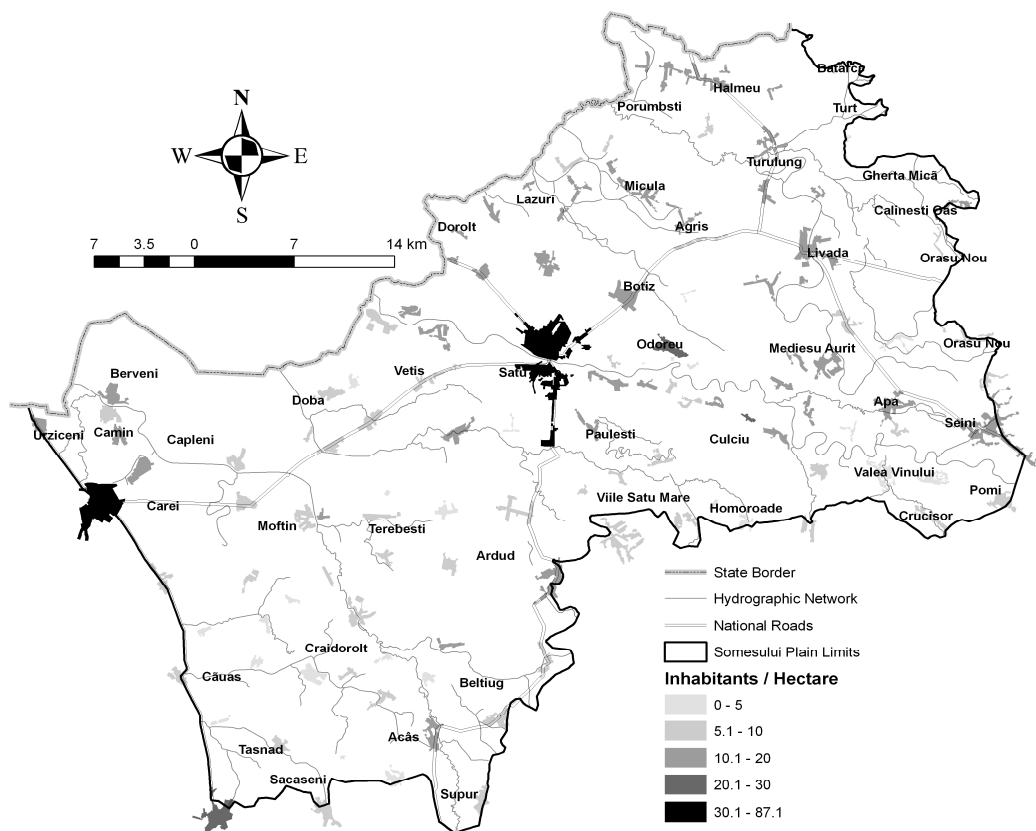


Figure 4. Map of population density in the hearth of settlements

(Source: General census of population and the inhabitants of Romania in 2002, County Department of Statistics, Satu Mare)

From figure 4 „The map of population density in the hearth of settlements”, we can notice that the main centers of anthropic pressure in the Someșului Plain are represented by the cities of Satu Mare and Carei, whose rates of density of population in the hearth are between 30 and 80.1 inhabitants/ha. In decreasing order, follow Seini, Livada, Tășnad, Ardud, Halmeu, Căpleni, Berveni etc. with a density of population in the hearth between 15 and 30 inhabitants/ha.

From spatial point of view, most of the settlements with low density of population are located north of Someș river, in the Turului and Miculei Plain. They are characterized by a high number of inhabitants, economic agro-industrial profile and a very good infrastructure, aspect which led to the increase of the anthropic pressure on this area (Kovacs, 2005). The lowest density of the population in the hearth is to be found in the settlements of Crasna-Homorod Plain, in the villages of Doba, Terebești, Moftin, Craidorolț, Căuaș etc. These settlements are characterized by a predominant agriculture, low number inhabitants, poor administration and lack of infrastructure (Kovacs, 2005). The anthropic pressure of these settlements is relatively reduced, the environment being able to rejuvenate.

The total surface of the hearths of the 125 settlements in the Someșului Plain is 13,530 ha, respectively 6.6 % of its area. In comparison with the total number of inhabitants, we have an average density of population in the hearth of 19.6 inhabitants/ha.

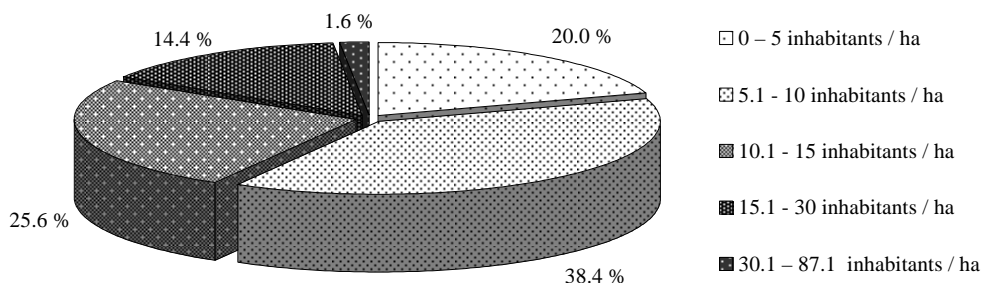


Figure 5. The percentage distribution of the settlements in the Someșului Plain according to the density of population in the hearth

Up to now, we can give the following reasoning: „the higher the density of the population in the hearth of a settlement, the higher the anthropic pressure of the respective settlement on the natural framework” or „between the density of the population in the hearth and the pressure of the respective settlement on the natural framework there is a direct conditioning in the sense that, if density increases, the anthropic pressure increases as well and viceversa, if the density decreases, the anthropic pressure decreases as well”. In other words, a small settlement with a high density of inhabitants in the hearth puts a high pressure on the belonging area. At the same time, a large settlement, with a low density of population in the hearth puts a low pressure on the natural framework. It is the human pressure on the area inside the hearth of settlement and not outside it.

In addition to all these, in the Someșului Plain, one can notice a natural connection between the number of population and the area of the settlements. The more the inhabitants of a settlement, the larger the hearth if the respective settlement.

THE DEGREE OF CONCENTRATION AND DISTRIBUTION OF THE SETTLEMENTS

It is an important indicator that can give us information both on the degree of environment favourableness in placing the human settlements and on their anthropic pressure.

Nevertheless, this indicator shows several drawbacks due to the fact it is not related to the high pressure of the settlements but to their number. As a result, it is important to analyse this indicator in correlation with the above analysed indicators.

From the analysis of the map of human settlements density in the Someșului Plain (figure 5), we can observe that its highest rates are found in the couloir of Someș river. Both favourable natural conditions and the existence of infrastructure for transport contributed to it.

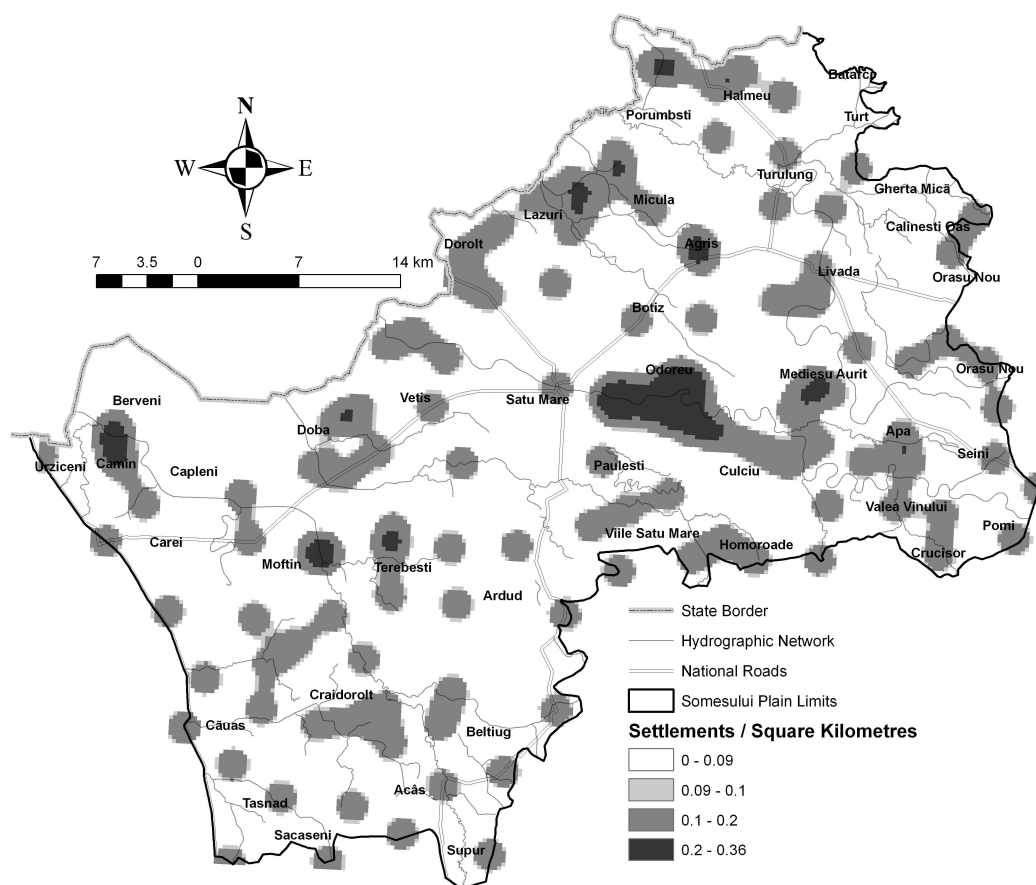


Figure 6. The density of settlements in the Someșului Plain
(Source: topographic map 1:100.000)

The lowest density of human settlements in the Someșului Plain is located in the area of the former marshes Ecedea and Livada (Adrian) as well as in the area surrounding the city of Satu Mare. The low density of the human settlements in the area of the former marshes is explained by unfavourable natural conditions which had existed there before the hydro-improving interventions. As regards the low density of the settlements in the vicinity of Satu Mare, it is explained by the necessity of insuring agricultural land to suit the increasing needs of the city.

THE STRUCTURE OF THE HEARTHS AND THE LAY-OUT OF THE BELONGING AREA

It is another important indicator in the assessment of human settlement impact on the environment, by providing information on the degree of buildings concentration in the hearth. The structure of the settlements hearths in the Someșului Plain is determined by natural factors of which the most important are the relief, hydrography and climate. Generally, the settlements in the Someșului Plain have gathered hearths, with dwellings situated on both sides of the road, next to each other in order to gain as much agricultural land as possible.

At present, the hearths of the settlements in the Someșului Plain develop toward their unification and fusion, thus appearing true barriers, strings or lines of anthropic pressure. These lines of anthropic pressure mainly follow the major means of communication, respectively the route of national roads (DN 19, DN 19A, DN 1F and DN 1C), and of county roads (DJ 192, DJ 193, DJ 194, DJ 197, DJ 195A etc).

In conclusion, by analysing the number of settlement population, its density in the hearth, the degree of concentration and distribution of the settlements in the area, the structure of the hearths, as well as the lay-out of the belonging area, we can conclude that the human settlements with the highest impact on the natural framework of the Someșului Plain are represented by urban settlements Satu Mare, Carei, Seini, Tășnad, Arad și Livada, followed by center villages such as: Halmeu, Turț, Odoreu, Micula, Berveni, Craidoroș etc.

Acknowledgments

This contribution presents results from the research projects: CNCIS PN II 751/2007, Project SISAT nr. 91-032/2007. The authors acknowledge to anonymous reviewer for their thoughtful suggestions and comments.

REFERENCES

- Erdeli, G., Dumitrache, Liliana (2006), *Geografia populației*, Ed. Corint, București;
Herman, G., (2009), *Omul și modificările antropice din Câmpia Someșului*, Ed. Universității din Oradea, Oradea;
Kovacs, M., (2005), *Geografia agriculturii din Câmpia Someșului*. Ed. Napoca Star, Cluj-Napoca;
Mac, I., (2003), *Știința mediului*, Ed. Europontic, Cluj-Napoca;
Nicoară, L., (1999), *Geografia populației*, Ed. Focul Viu, Cluj-Napoca;
Pop, Gr. P., (2005), *Dealurile de Vest și Câmpia de Vest*, Ed. Universității din Oradea, Oradea;
Posea, Gr., (1997), *Câmpia de Vest a României*, Ed. Fundației „România de Măine”, București.

Submitted:
September 19, 2010

Revised:
February 2, 2010

Accepted:
June 24, 2010

Published online:
June 30, 2010