

# **AN EVALUATION OF THE CHARACTERISTICS AND FUTURE DEVELOPMENT OF THE SETTLEMENTS IN THE SOMESANA PLAIN (NORTHERN TRANSYLVANIA PLAIN)**

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**ABSTRACT.** -An evaluation of the characteristics and future development of the settlements in the Someșana Plain (northern Transylvania Plain). On the surface of 1846.7 sq km of the Someșană Plain, there are 141 rural settlements. The density of the rural settlements, which is on an average of 7.6 villages/100sq km, is above the average value registered at the level of the whole Transylvanian Plain. The average population density of a rural settlement is of 510 inhabitants, much lower than the average density of the Romanian village. The development of the villages in the Plain depends on the improvement of the infrastructure and the means of communication as well as on the creation of better connections between the relatively remote villages and the urban centres from the adjacent corridor areas. Another problem to be solved, besides this aspect, is the water problem, which is unsatisfactory both from the quantity and quality point of view; in addition there is the building of facilities of social interest at a proper and functional level (educational institutions, health institutions, communication institutions etc.)

**Key words:** development, characteristics settlements, Someșana Plain

## **1. Introduction**

The Someșană Plain, situated in the central northern part of the Transylvanian Plain, covers the whole sector crossed by the tributaries of the Someșul Mic river (Zăpodie, Murătoiu, Gădălin, Fizeș și Bandău) and the Someșul Mare river (Meleș and Șieu through its tributary Dipșa). Its individuality, from a geo-demographic point of view, is the result of a long evolution of its communities under the definite influence of physical, geographical, social and historical factors.

### **1.1. Geographical and physical premises in population and settlements distribution**

The geographic conditions specific to the region had an important role in the geographical distribution of the population and settlements in the area. In the Someșană Plain the cuesta type relief is predominant due to the distribution of arable lands: cereals alternating with vine on cuesta fronts. The distribution of the valleys and their accessibility influenced the overall outlook of the settlements. Besides the monoclin relief, which is characteristic for this region, there are frequent landslides and extensive floodplains not depending on river flow.

The quality of the phreatic waters is inadequate from the viewpoint of mineralogy, hardness of water, bacteriological and biological properties and affects the quality of life in this Plain. The quantity and quality of the water resources in the Someșană Plain influenced the settlement and the development of rural habitats and determined the training and maintenance of natural lakes.

The natural resources also influence the settlements in the Someșană Plain from the economic point of view. The most significant resources are the methane gas and the salt. Salt mining has stopped since the middle of the 19<sup>th</sup> century yet it greatly marked the economic development of Cojocna and Sic, which are now two of the largest rural settlements with a complex economic development. The methane gas is now the only natural resource and is exploited in the domes in Mociu, Puini, Țaga, Buza and Strugureni.

### **1.2. Social and historical premises in population and settlements distribution**

A series of social and historical factors have shaped the specificities of the population and settlements in time. The remains discovered in Fizeșul Gherlii and Dipșa show that this region has been inhabited since the early Iron Age (7<sup>th</sup> and 5<sup>th</sup> century BC).

The social-economic development of the Plain was marked by its outlying, given the distribution of the localities in peripheral administrative and territorial units as compared to the local coordinating centres. Thus, ever since the appearance of the first administrative and territorial organizational forms – the royal counties – in the 12<sup>th</sup> -13<sup>th</sup> century, there have been three such sectors in the Someșană Plain: Solnocul Dinlăuntru, in the north, Dăbâca in the centre and Cluj in the south. This distribution has slightly changed. In the 20<sup>th</sup> century, between the World Wars, the Someșană Plain covered the peripheral area of four counties: Cluj, Mureș, Someș and Năsăud and at present it covers the counties of Cluj and Bistrița-Năsăud. Its outlying character is also marked by the towns, polarizing centres situated outside the Plain in outlying corridors, which determined the migration of the population and resources predominantly towards them.

## **2. Characteristics of settlements**

In the modern and contemporary period the evolution of the geo-demographic elements presents a series of features that place the Someșană Plain in the general phenomenon that characterizes Romania yet they set themselves out through the intensity and special orientation they had.

### **2.1. The distribution of settlements**

On the surface of 1846.7 km<sup>2</sup> of the Someșană Plain, there are 141 rural settlements. The density of the rural settlements, which is on an average of 7.6

villages/100km<sup>2</sup> is above the average value registered at the level of the whole Transylvanian Plain, the highest rural settlement density (8.5 villages/100km<sup>2</sup>), being registered in the Unguraşului Hills, which are followed by the Fizeşului Plain (8.4 villages/100km<sup>2</sup>), both characterized by a strong fragmentation and a high number of small settlements. The average population density of a rural settlement is of 510 inhabitants, much lower than the average density of the Romanian village.

**Table 1.** The Someşana Plain. Density of settlements, area coefficient and average distance between localities

Subunit	Surface (km <sup>2</sup> )	Settlements	Density of rural settlements (villages / 100 km <sup>2</sup> )	Area coefficient(sq km/ settlement)	Average distance between localities (km)
Dealurile Cojocna Sic	568,3	36	6.7	14.9	4.6
Dealurile Unguraşului	393.1	34	8.5	11.6	4.0
Dealurile Lechinţei	340.1	27	7.9	12.6	4.2
Câmpia Fizeşului	519.1	44	8.4	11.8	4.1

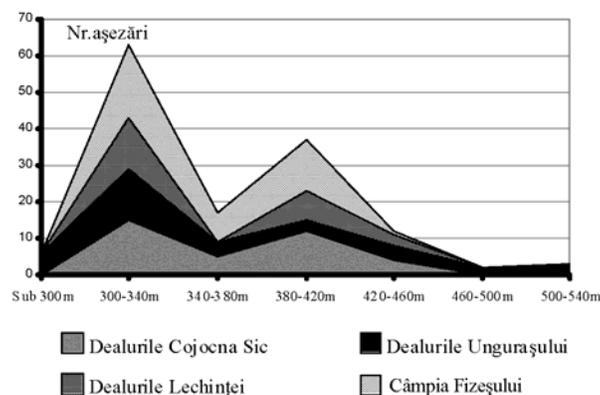
In the Someşană Plain, most communes have a low (28%) and a medium (19%) dispersion index, the highest values being characteristic to the communes in the central division of the Plain, with a high number of component villages. Depending on the polarization potential, the communal centres are placed at intervals of 0 (the commune of Sic) up to 6.14 (the commune of Lechinţa). The polarization potential in most communal centres is medium and above average at Plain level (38% and 33%, respectively).

In time, the population has adapted its habitat forms to the physical and geographical conditions, especially to the forms of relief and the water sources.

Depending on the characteristics of the relief and the morphological elements of valleys and slopes, several different types of localization of dwelling places can be identified. Most settlements are situated along valleys (particularly along side valleys) on the glacis between floodplains and slopes (due to the water resources and the fertility of the soil), in small basins of origin, or on slopes, where they occupy the areas of interfluves and, extremely rarely, on the structural areas of the slopes' profile.

Due to the altitude of the Someşană Plain and the peculiarities concerning water supply, most settlements- 80 representing 57% of all settlements- are situated at altitudes lower than 340m, especially between 300-400m. According to the

share, next comes the category of settlements whose average altitude varies between 380 and 420m, which represents almost a third. There is no village situated above 540m, only three villages, Ceaba, Cuța and Sicfa (Ungurașului Hills), being situated above the altitude of 500m.



**Figure 1.** The Someșană Plain. The distribution of settlements according to altitude.

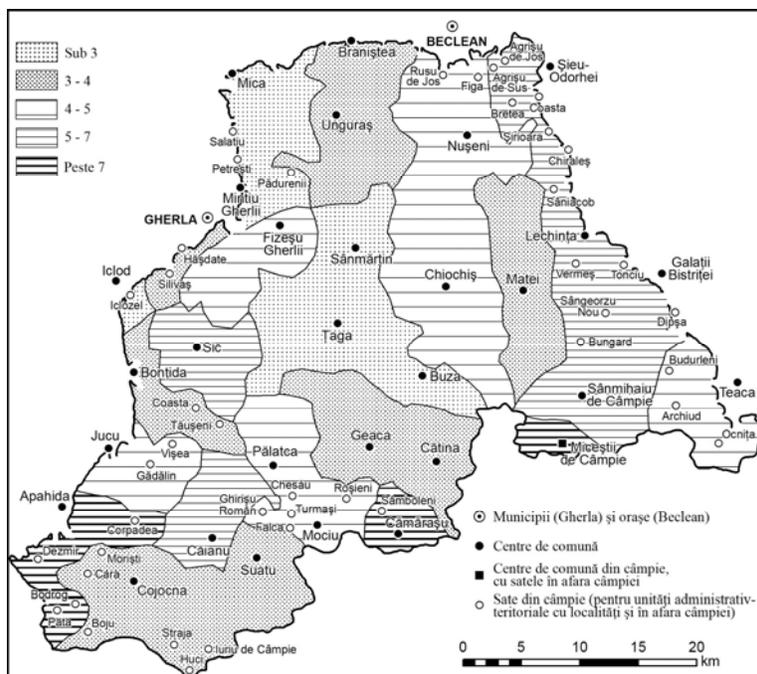
The average density of the population in villages, in the Someșană Plain is of 5.6 inhabitants/ hectare. In the area of Cojoana Sic Hills, the population density in villages is close to the above-mentioned value and, respectively, to 5.4 inhabitants/sq km. In the area of Lechinței Hills and Ungurașului Hills, the population density in villages has higher values, such as 6.3 and 7.1 inhabitants/hectare respectively, while the Fișeșului Plain is much below that value (4.5 inhabitants/hectare). In the first part of the 20<sup>th</sup> century the households with two nuclear families were predominant. In 1910 the average number of persons per household was 4.8, with little variations in the territorial profile. The number of households has risen considerably, from 20.127 in 1910 to 47 066, simultaneously with the reduction in the number of inhabitants. In this way, the average number of persons per household is of 1.5.

The correct adaptation of the settlements to the natural conditions, in a certain social, political and economic context, has generated a great variety of rural settlements. The most common are the settlements with a linear-tentacle-like texture, with an irregular form and a collective-spread structure.

The aspect of the rural settlements is also determined by the age of the buildings reflected by the index of renewal.

Studying the evolution in the number of houses between 1971 and 2002, the index of urban renewal has a medium value of 4.5% at the level of the Someșană Plain, however, at the level of localities the values vary between 0 and

19.8%. At the level of physical and geographic subunits (fig. 2), the highest index of urban renewal of 5.7% was registered in 2002 in the eastern part of the Plain – the Lechintei Hills, while the lowest value of 3.5% characterizes the north-eastern part of the Plain – the Ungurasului Hills.



**Figure 2.** Someșană Plain. The index of urban renewal (1981-2002).

The way of using the terrains reflects the agricultural function of the area under discussion. The statistics highlight the fact that the agricultural areas, which include 75.4% of all the terrains in the whole region, are predominate. The forest represents only a small part of the Someșană Plain (14.8%), however this value is above the average value of the Transylvanian Plain (approx. 9%).

## 2.2. The geo-demographic size of the settlements

The geo-demographic size of the settlements is influenced by the high number of small settlements (65% of the total settlements), that include only 27,8% of the total population, the highest number being registered in the Fizeșului Plain (33% of the total of small settlements) and the lowest number in the Ungurasului Hills (only 18%).

The medium-sized rural settlements (500-1500 inhabitants), which were 41 at the census in March 2002 (29% of the total settlements in the unit as compared to 45.7% registered in 1966), were inhabited by 47% of the population in the Someșană Plain.

At the census in March 2002, the large rural settlements were concentrating 24.3% of the unit's population. These settlements benefit from a favourable position, in contact areas, on the border with the corridor area of Someșu Mic river: Bonțida, Jucu de Sus, Someșu Mare- Cireșoiaia, or on important road axes: Mociu (on DN16), Lechința (normal railroad and district road), Unguraș, while the others benefited from the extractive industry: Cojocna, Sic. The majority of the large rural settlements are to be found in Cojocna Sic Hills (4), while in the rest of the units they are spread as follows: two settlements on the Ungurașului Hills, one settlement on Lechinței Hills and one on Fizeșului Plain.

### **2.3. Economic activities**

The main economic activities of the villages in the Someșană Plain are still the same since ancient times. The exploitation of underground resources, of the salt, up until the second part of the 19<sup>th</sup>, and of the methane gas, beginning with the first decades of the 20<sup>th</sup> century, did not make changes in the economic profile of the Plain (Maier A. ,2003). It has not been considered as a potential region for investments, these being concentrated especially in the surrounding areas, so that it continues to evolve according to the traditional agricultural economy patterns. The big villages on the territory of this division (Cojocna, Bonțida, Jucu de Sus, Sic, Cireșoiaia, Unguraș, Lechința) have developed certain non-agricultural activities, generating a functional diversity.

In 2002, the labour force participating in industrial activities counted 6186 persons, which meant 23% of the total participating labour force. The processing industry is present, at the level of the Someșană Plain, in some large rural settlements, especially in communal centres. The units exploit mostly the local raw material: agricultural products (cereals, milk), wood. Another characteristic of the industrial units on the territory of the Someșană Plain that needs mentioning is the reduced number of employees.

In 2002, 4034 of the participating workers, which means 15% of the participating labour force, were employed in the domain of services (Ratiu Ramona, 2008). The majority of the population working in this domain is to be found in communal centres, which are bigger rural settlements and, therefore, have an administrative function as well.

The category of rural settlements, with agricultural functions as the most common, contains the largest number of households-103, which means 73.5% of the villages existing in the Someșană Plain. According to the number of population participating in agriculture and also according to the complementary functions they

have, the localities can be divided into agricultural settlements and mixed settlements, the latter including the majority of communal centres.

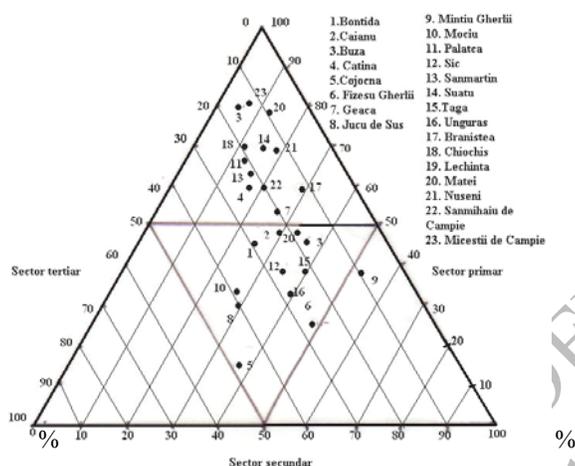


Figure 3. Someșană Plain . Function of communal centres.

The Someșană Plain is characterized by a growth in the number of economic units that are generally specialized in trade, especially in public food services. In the localities of the plain such units exist in a large number, most of them being Family Associations or Companies, with a high number of employees. Tourism in the Someșană Plain is rather weak even though the natural and the artificial potential have much to offer for exploitation. For example: the natural reservations of Săcălaia, Suatu and Valea Legii, the ponds used for sport fishing, the watering places, the churches, and the monuments belonging to the national patrimony.

#### 2.4. Vulnerability of rural settlements

The geographical condition, permanent social and economic premises – or rather the territorial reality as a whole with all its structures represents a basic requirement in the genesis and evolution of any village or, generally, of any habitat. From this basic element – location- derive the other elements that actually constitute the functions, structures and feasibility of a settlement.

Summing up the values of partial vulnerability (Sorocovschi V., 2007) expressed through classifying index values characteristic for space, physical, demographic, social and economic vulnerability in the 141 rural settlements in the

territory under analysis shows that most settlements are vulnerable from social, economic and demographic point of view (45.62%).

Physical vulnerability affects 31% of rural settlements while 23.38% of the settlements are characterized by considerate space vulnerability as they are centrally situated in the unit, at great distances from the polarizing centres in the adjacent corridors.

According to the classifying index values obtained, there are four major classes (fig.4).

a. The class of rural settlements with a much reduced vulnerability comprises 13 communal centres. They are rural settlements of significant demographic potential, administrative centres provided with diverse quality equipment. They are settlements where both human and natural resources have caused a high resilience.

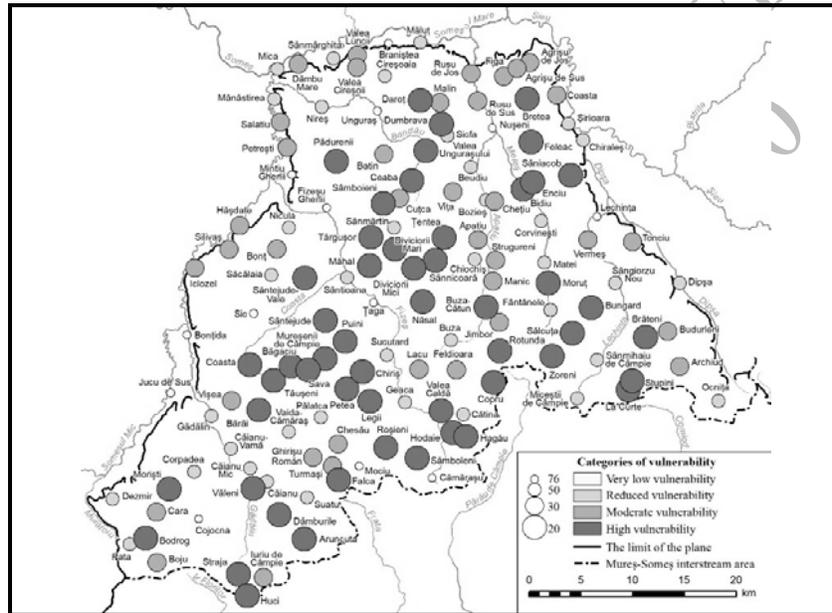


Figure 4. Vulnerability of rural settlements in the Someșana Plain.

b. The class of rural settlements with a reduced vulnerability comprises 38 villages representing 25.5% of the total number of population in the Plain. Most of them are communal centres with a higher social, economic and natural potential provided with appropriate infrastructure and a more types of services for the population.

c. The class of rural settlements with a medium vulnerability comprises 25.5% of the total number of population. The settlements in this class are characterized by a more significant demographic vulnerability, most of them having a reduced number of inhabitants and a demographic structure with a predominantly aging female population.

d. The rural settlements with a high vulnerability are the most numerous (36.8% of the total number of population) with a generally reduced potential. This category comprises 52 villages with a high demographic vulnerability; all localities are small and very small, relatively isolated, situated at great distances from urban centres and communication roads. The rural settlements in this category are very likely to disappear as in most of them the population is growing thin.

### **3. Evaluation of the prospects for the development of settlements in the Someșana Plain**

In the evaluation of the prospects for the development of the Someșană Plain, as well as those for straightening out the complex geo-demographic situation, the SWOT method was used. Using the results obtained from the analyses of detail and the method this type of analysis consisted of, the strong and the weak parts of the Someșană Plain were established.

#### **Advantages**

The relatively uniform and altitude relief and the low relief energy (except for the north-western sector), the relatively large valleys, with relatively large terraces offered the possibility of a faster revenue rate and, therefore favoured an early population process.

*The density of the rural settlements*, on an average of 7.6 villages/100sq km, is above the average value registered at the level of the entire Transylvanian Plain.

*The amount of arable land* per inhabitant was of 0.92 hectares in 2002, which means that it was above the national value of 0.47 hectares/inhabitant.

*The industrial potential* is considerable due to the methane gas resources. In comparison with other exploitation areas, the methane gas in the Someșană Plain has the advantage of being situated at lower depths.

*The agricultural potential* is considerable, due to the fertility of the soil and the share of agricultural land. The statistics highlight the fact that the agricultural areas, which include 75.4% of the total terrains in the whole region, are predominate.

The Someșană Plain is characterized by an important tourist potential, both natural and artificial: the natural reservations of Săcălaia, Suatu and Valea Legii, the ponds used for sport fishing, the watering places, the churches, and the monuments belonging to the national patrimony.

### **Weak points**

*The quality of the phreatic water* is unsatisfactory from the mineralogical point of view, as well as from that of hardness, biological and bacteriological properties, and this has repercussions on the quality of life in this region.

The social-economic evolution of the Plain has been marked by its marginal character, due to the integration of the localities in the administrative-territorial outlying units as compared to the coordinating local centres.

The excessive degradation of the agricultural property and the interwar way of exploiting the soil represent a disadvantage in the growth of labour productivity. Moreover, there is a noticeable resistance to the modern ways of association.

*The physiological density* (0,42 inhabitants/hectare), which is much lower as compared to the national average (1,46inhabitants/hectare), reflects a low potential of cultivation, maintenance and agricultural endowment.

*The participating labour force* is characterized by a reduced share of 37.4% ( in 2002). There is a growth of the labour force participating in agriculture from 55% registered at the 1992 population census, to 61.4% in 2002.

The category of rural settlements, with agricultural functions as the most common, contains the largest number of households-103, which means 73.5% of the villages existing in the Someșană Plain. Another aspect to be noticed is the high number of small settlements (65% of the total settlements), that include only 27.8% of the total population.

The inadequate infrastructure is another weak part characteristic to the Someșană Plain. The roads, belonging to district roads category, are in poor condition, the water distribution system is critical, the methane-gas pipe-line network does not meet the current demands and a lot of localities are not connected to the network.

### **Opportunities**

The Agency of Development of the North-Western region and its contribution to the acquisition of European funds and consultancy activities might facilitate the development of certain projects that aim to develop the infrastructure, the small and middle-sized industrial units (IMM) in order for these to exploit the local resources (methane gas and agricultural products), the agricultural potential and the tourist potential.

The proximity to the big commodity markets of agricultural products is of great importance to the agriculture of the Someșană Plain. In this respect, the most representative are the urban centres of Cluj-Napoca, Dej, Beclean, situated in the corridor areas of the Someșu Mic and Someșu Mare rivers.

The development of the 2005 PHARE programme, which regards the improvement of the lakes and the salted waters in this region, and takes into consideration the Cojocna Watering Place in the county of Cluj and the Figa

Watering Place in Bistrița-Năsăud county, will ensure the changing of these locations into spa resorts at European standards.

The inclusion of the administrative-territorial units in the south-east of the Plain will put an end to their relative state of isolation.

#### **Risks**

One of the risks is the general high poverty rate caused by the excessive degradation generated by exploitations and the use of subsistence farming. Such methods cause soil erosion and loss of soil fertility.

There is also the continuous depopulation generated by the negative natural growth, which is not compensated by the migration growth.

The inclusion in development programmes only of the regions with a high demographic, industrial or tourist potential will deepen the discrepancy between them and the units which benefit only from the agricultural potential exploited by an ageing population.

#### **4. Conclusions**

The Someșană Plain represents, from the point of view of the settlements, a rural area with a high ageing rate, caused by the demographic export that has characterized the region. The development of the villages in the Plain depends on the improvement of the infrastructure and the means of communication and on the creation of better connections between the relatively remote villages and the urban centres from the adjacent corridor areas. Another problem to be solved, besides this aspect, is the water problem, which is unsatisfactory both from the quantity and quality point of view; in addition, there is the building of facilities of social interest at a proper and functional level (educational institutions, health institutions, communication institutions etc.)

The modernization of agriculture - the main economic support of economy - might determine the creation of more jobs. The exploitation, at a local scale, of the raw material resources in agriculture, through the building of small industrial units, might contribute to the diversification of services and to the further development of the villages. Another source of development might be represented by tourism, especially cultural and religious, which might become the engine of the economic development, as well as sport tourism and rural tourism. The entertainment tourism has a lot of potential, especially in the former areas of salt exploitation.

The future evolution of the Someșană Plain will be determined by the way in which action is taken in order to stimulate the activities in the region. The Agency of Development of the Northwestern region and its contribution to the acquisition of European funds might be considered an advantage for the future

development of the region. The development of the 2005 PHARE programmes, which aim to improve the lakes and the salted waters in this region, considering the Cojocna Watering Place in Cluj county and the Figa Watering Place in Bistrița-Năsăud county, as well as the measure of inclusion of the administrative-territorial units from the south-east of the Plain in the metropolitan area of Cluj Napoca, might lead to a flourishing future development of the localities in the Plain.

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