

HIERARCHICAL LEVELS AND SETTLEMENT SYSTEMS IN THE HILL REGION FROM NORTH-WESTERN ROMANIA (THE HILLS OF SILVANIA)

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Összefoglalás - Azon tényezők alapján, amelyek egy települést jellemeznek és befolyásolják annak fejlődését (a település típusa, a társadalmi-politikai potenciál, a települések rendszerében elfoglalt hely, a közigazgatási szerep) kiemeltünk 5 hierarchikus szintet a Szilágysági-dombok településein. Kettőt a városi településeknél, hármát a falusi településeknél, ezek voltak: a közép nagyságú városok, kisvárosok, községi központok, községek és falvak (ide tartoznak a tanyák is). A településhálózatban létező kapcsolatokból kiindulva és figyelembe véve a központokat, bemutatjuk azokat a területeket, amelyek a nagyobb településrendszerekhez tartoznak. Négy ilyen megyeközpontot határoltunk el, amelyek magukba foglalják a Krasznai-domságot és a hozzátartozó külső hatásterületet. Zilah településrendszere a legfontosabb ebben a régióban, amelyhez hozzátartozik Szilágy megye négy városa által alkotott alrendszer, valamint a Sarmasági alrendszer. A Nagyváradi rendszer a délnyugati részre, a Margitai és Székelyhídi alrendszere (Berettyó-Széplak kis részére is) kiterjed. A Szatmár megyei településrendszer magába foglalja Tasnád, Szelestyehuta és Codru-domság alrendszereit, ez utóbbi közvetlenül kapcsolódik Szatmárhoz. A Nagybányához tartozó alrendszer Codru-hegylábtól Sülelmedig terjed.

Summary - On the basis of the factors which characterize a settlement and influence its evolution (the category of settlement (rural or urban), all types of social-economic potential, the position within the settlement systems, the administrative function) we highlighted five hierarchical levels of settlement within the Hills of Silvania - two belonging to the urban category and three to the rural one: middle-size towns, small towns, intercommunal centres, communal centres and simple rural settlements (which include villages and hamlets). The vertical structure includes the horizontal one (in the field). Going out from the links existing between the components of the settlement network and those of the superior polarizing centres, we identified parts which belong to larger settlement systems, polarized by four country residences which include the hills of Crasna and which reveal the dominant external direction of flows formed here. The settlement system of Zalău is the most important system within this region and it comprises subsystems centred on the four cities of Sălaj County and of Sărmășag subsystem. The system polarized by Oradea comprises the south-western part, together with the Margita and Săcuieni subsystems (and a small part of Suplacu de Barcău). The settlement system from Satu-Mare County includes Tășnad, Poiana Codrului and Colinele Codrului subsystems, the latter being directly attracted by Satu-Mare. The subsystem from Piemontul Codrului and Ulmeni is integrated within the settlement system polarized by Baia Mare.

Key words: Romania, Hills of Silvania, settlements, hierarchical levels

THE HILLS OF SILVANIA FORMING AND GENERAL PHYSICAL GEOGRAPHICAL CHARACTERISTICS

The Hills of Silvania include the hills and depressions, promontories and piedmonts situated between the sunken mountains of the Intracarpethian „yoke” in the east, and the Plains of the Someș and Barcău in the west. Through their position and genesis they belong

to the Pericarpathian hills from the west of the Carpathians. The hills of Silvania have close relationships with the Plateaux of the Someș. They were formed through the transformation of the relief, respectively of the underwater edge into a vaste dry land at the end of the Dacian period (*Mac and Idu, 1992*).

The relief of this zone situated at NW of the line of promontories of Meseș-Dumbrava-Ticău, is characterized by a succession of monocline surfaces, set on several levels.

The Hills of Silvania are of low altitudes (150-400 m) and energy of the relief (60-150 m). In contrast with the general level of the low hills it is detached through rounded forms and dominant landscape of woods on the crystalline promontories: Măgura Șimleului (596 m), Măgura Chilioarei (347 m) and Culmea Codrului (579 m), considered as remains of a mountainous range ruined and sunken. Amongst the crystalline promontories there lie large depressions along the great rivers that cross the contrast with the slopes and interflaves of the general level. Generally, the valleys are unlaterable, having large surfaces with a piedmont character (mostly), and they disappear under the strongly alluviated plains of the great rivers (Barcău, Crasna, Zalău and Sălaj) - which are subsequent here - that gave off the structural fronts of cuestas oriented towards SE.

The relief of the piedmont hills of Silvania have a series of particularities:

- the outstanding assymetry of the valleys, having a monolateral development of the terraces and even of the river meadow;

- the permanent withdrawal of the cuestas either because of their being undermined by the rivers, or – especially - because of the regressive corrosion and generally energetic of the torrents with obsequent character and respectively, because of gravitational processes in the sectors where the cuestas have an active evolution.

The whole region is characterized by an active dynamics of the relief with large processes of erosion brought over by the fragile substratum (marl, sand, clay, pebbles alternating) and on the other hand by recent positive movements (*Dealurile Camarului*) or the sinking on the rivers Barcău, Crasna and the valley of the Sălaj.

The origin and general traits of the Hills of Silvania bear different nuances that divide the region in a number of units with mountainous structures and they are differentiated according to their dimensions and ecogeographical particularities. Thus, there is a middle line made up of promontories - a horst that appears in the vicinity of the town of Șimleu Silvaniei (Măgura Șimleului) and disappears close to the locality of Poiana Codrului (Târnița 551 m) and includes in the eastern part the Depression of Silvania.

At the level of the hydrographic basins there can be differentiated erosion basins, some of them enlarged and reunited by saddles and gorges/ravines in larger areas that bear the characteristics of depressions: the Depression of Șimleu, the Depression of Zalău and the Sălajului, each of them making up - in fact - an association of hills and erosional enlargements that reflect the structure of the substratum.

In the piedmont hills of Silvania, having a more uniform lithology reflected by the milder morphometrical characteristics of the relief, from the point of view of the needs for systematization, there can be found a less diversified and homogenous network of settlements. For this reason the geographical analysis of the whole region was made in a differentiated way.

The approached region represents the northern compartment of the Western Hills, marking the transition between the Transylvania Depression and the Western Plain of Romania. It extends over 3500 km² with a population of 278,000 inhabitants. It includes

four counties - Sălaj, Maramureș, Satu Mare, Bihor - 211 rural settlements and five towns (Fig. 1).

The urban settlements are located on the outskirts of the Silvania Hills, and only Zalău (72,000 inhabitants), the residence capital of Sălaj County, acquires some significance. The other towns (Marghita, Tășnad, Jibou and Cehu Silvaniei) have a low demographic potential (between 6200 and 17,000 inhabitants). This accounts for the reduced influence they exert on the neighbouring rural territories. Reversely, main rural areas are polarized by the county capitals situated in the vicinity of the Silvania Hills: Oradea (220,000 inhabitants, the County Bihor), Satu Mare (135,000 inhabitants, the County of Satu Mare, Baia Mare (150,000 inhabitants, the County of Maramureș). Consequently, there is a clear prevalence of the centrifugal forces oriented towards the above - mentioned county capitals (Zalău included), which determined a significant depopulation of the rural space over the last decades.

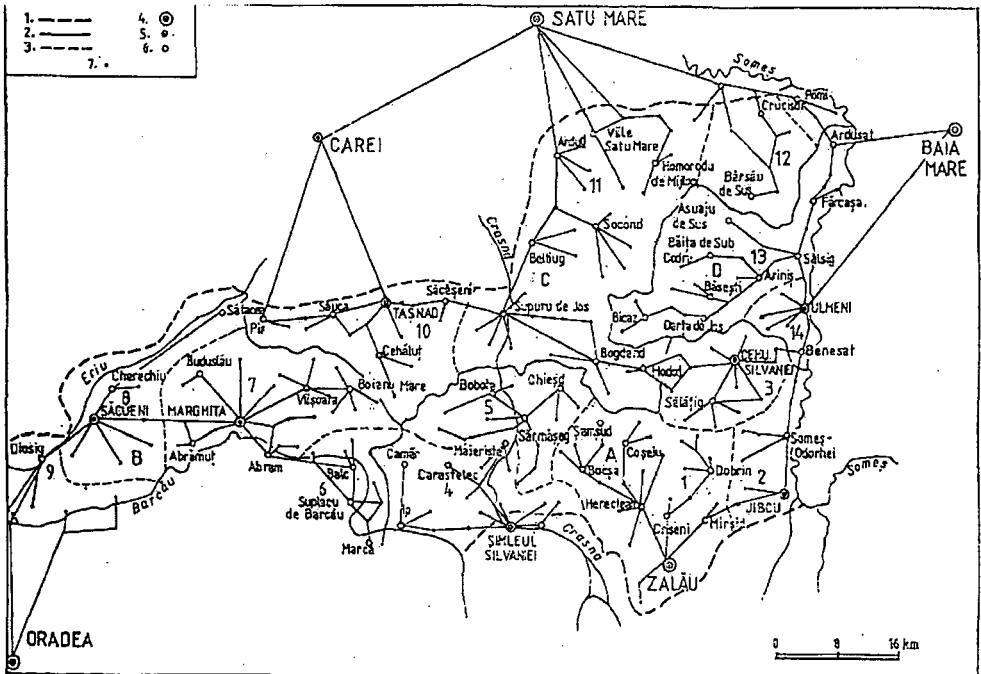


Fig. 1 Silvania hills. Settlement systems. 1. Region limit 2. Settlement systems limits 3. Settlement subsystems limits 4. County towns 5. Towns 6. Communal centers 7. Villages A. Zalău settlement system – subsystems: 1. Zalău 2. Jibou 3. Cehu Silvaniei 4. Simleul Silvaniei 5. Sarmasag. B. Oradea settlement system – subsystems: 6. Suplacu de Barcău 7. Marghita 8. Sacueni 9. Oradea. C. Satu-Mare settlement system – subsystems: 10. Tășnad 11. Satu-Mare 12. Poiana Codrului. D. Baia-Mare settlement system – subsystems: 13. Baia-Mare 14. Ulmeni.

The Hills of Silvania represent a low urbanized area (40% urban population), with rural settlements of variable demographic dimensions (Pădureni 2 inhabitants, Săcuieni 7260 inhabitants). The differentiation process of the settlements, their hierarchization continued alongside the historical development, generally during the 2nd milenium AD.

The scaling of human settlement must necessarily take into consideration various factors, from amongst which the most important are: type of settlement (urban or rural),

demographic potential, economic potential, social-cultural facilities and developments related to the location potential, infrastructure network and, mainly to the systems (subsystems) of settlements, and administrative function (Erdeli, 1996).

The level reached by a settlement at a certain moment within the frame of habitual hierarchy is expressed primarily through its administrative function. Reversely, the function acts as a stimulus for the development of that settlement. The distribution of administrative functions of different settlement and their level underwent many changes during the last centuries (see the administrative maps from 1920, 1956 and the present one) (Cucu and Ianoș, 1988).

Therefore, during the inter-war period (after the administrative reorganization dating back to 1926) Zalău held the highest position amongst the human settlements from the Hills of Sylvania, as it was the only town and county capital in Sălaj as well. The next position in the hierarchy was occupied by other regional residence towns, such as: Cehu Silvaniei, Jibou, Marghita, Tășnad, Săcuieni and Ardud. The third level is occupied by important villages with communal secretary (there were 15 of them: Belțuig, Pir, Sălacea, Camăr etc.) and the fourth by villages with local secretary, which catered for approximately 2 to 4 settlements. The lowest position of this hierarchy was held by simple rural settlements (middle-size or small villages), and hamlets.

The administrative-territorial organization carried out in 1950 determined a certain standardization of the administrative function. Consequently, the county capitals ranked first in the hierarchy - Jibou, Zalău, Cehu Silvaniei, Harghita, Tășnad, Săcuieni - with Zalău standing out as the only town of the region. It was followed by the local centres and than by the villages and the nearby hamlets.

The present situation highlights a more visible and prominent differentiation of the settlements located in Crasna Hills, especially with regard to the rural category. Considering therefore - mentioned factors - mainly the administrative function, demographic potential - five hierarchical levels of settlements can be profiled, including two urban categories and three types of rural settlement (Fig. 2).

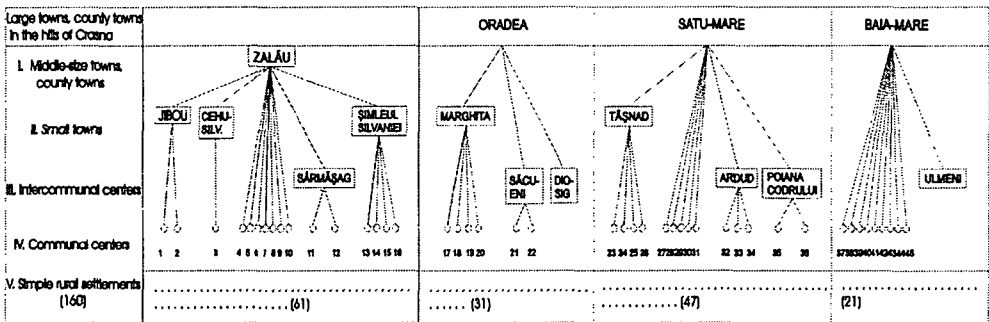


Fig. 2 Hierarchical levels of investigated settlements

These levels should be approached according to a flexible perspective, as each level is characterized by significant variations. Therefore, regarding the demographic potential of Marghita it must be pointed out that it has a double population on average, as compared to the other three small towns. Poiana Codrului and Ulmeni have a population three or four time smaller than the other middle-size or small town centres.

Poiana Codrului is neither a communal centre. The subcategory of small communal centre is also characterized by significant differences - ranging from large villages (Viile Satu-Mare, Sălacea, Camăr, etc.) to small villages (Săuca, Socond, Coșeiu, Dobrin). The lowest level of the settlement hierarchy displays a somewhat greater diversity (Derșida 1910 inhabitants, Țărmure 5 inhabitants). This calls for a breakdown into two sublevels: villages and hamlets (*Molnar, 1972*).

SYSTEMS OF SETTLEMENTS

The human settlement network of the Silvania Hills shows undeniable relationships between most of its components, extensively facilitated by infrastructure and the communications system. The communications network has a prevailing transversal orientations, connecting the Western Plain to the Transylvanian Depression. More importantly, the railway Jibou - Zalău - Sărmășag, with its ramifications to Șimleul Silvaniei - Marghita - Săcuieni and to Țășnad - Carei, and the E 81 highway stand apart. In addition, the roads of the north and south margins (Baia Mare - Satu Mare, Zalău - Șimleul Silvaniei), from the eastern margins (all situated along the Someș River), and the more fragmentary highways located at the contact area of hills and plains must be mentioned. Apart from these, the links reaching out beyond the county limits are rare and are materialized in county roads: Țășnad - Marghita, Cehu Silvaniei - Supuru de Jos and Sălsig - Cehu Silvaniei.

On the other hand, several significant discontinuities emerge, generated firstly by the administrative borders and secondly by a few strong orographic subunits. Consequently, the main contribution in this respect goes to the county borders, due to the attraction exerted by the four county capitals (three of them situated in the exterior and Zalău at the margins, a phenomenon which also explains the strong manifestation of centrifugal forces within the Silvania Hills. They cause the presence of some highway discontinuities all along the Western limit, north of Barcău, between the south-eastern settlements of Satu-Mare and those from the north-western part of Sălaj county, between Bârsău de Jos and Fărcașa etc.

Among interior natural units, a more prominent separating role is assigned to the alignment of crystalline hillocks. The largest one is the Codru Hill mainly corresponding to the boundary between the counties of Satu Mare and Maramureș. To the south, the Chilioara and Șimleu hills cause a relative decrease of the influence of Zalău and the gravitation of some settlements of the Sărmășag - Camăr subarea towards Șimleul Silvaniei.

The presence of mineral resources - mainly lignite - determined attractions over restrained areas, the most important being polarized by Sărmășag, which has also a very strategical position within the local communication system. The oil industry, which does not require a numerous work force, has a poor impact in this respect, although there is a strong tendency of the work force to move from the few towns on the right bank of Barcău River, towards Suplacu de Barcău and Balc. The same type of flow, on a more or less local level, is conditioned by the service supply and the industry of the towns polarized by Săcuieni, Ulmeni and Poiana Codrului.

Given the relationships between settlements with many discontinuities in the territory, given the diverse flow and force directions (mainly acting divergently), it can be asserted that in the Silvania Hills the transition from a network settlement type to a unitary settlement system, characterized by organic structure, complexity, integrity, adaptability



Fig. 3 Sylvania hills geographical position in the North-West of Romania

has not been completed yet. However, we can highlight the existence of several components of a system and of several subsystems, which can be integrated into larger settlement systems polarized by county capitals and with territories in the Sylvania Hills. This calls for the identification of four general settlement systems that have as centres Zalău, Oradea, Satu Mare and Baia Mare. The polarizing tendency is both administrative and economic, due to the influence of the industry and the service diversity offered (Fig. 3).

A. Zalău settlement system encompasses the subsystems centred on the four towns of Sălaj County, and includes the Sărmășag system. Three of the subsystems extend only partly in the Sylvania Hills (Ianoș, 1987).

1. **Zalău subsystem** includes in its regional territory the settlements of Crișeni, Dobrin, Hereclean, Bocșa, Coșeiu, Șamșud, than the villages Mirșid, Firminiș, Aghireș and Fetidia, which basically represent 28 villages from which 7 are local centres. Their relationships with the county capital are multiple, and are generally decreasing in intensity with the increase in distance and especially towards the termination of secondary roads. The following deserve particular attention: the supply of part of the necessary work force for Zalău, the commercial links, the food supply of the city. A typical feature of this partial system is the marginal position of the polarizing centre.

2. Similarly, the **Jibou system** has its centre situated at the margins of the region, but on an important communication axis, a position is mainly reflected in the role that the transport function holds in this small town.

Apart from Jibou, it includes 9 settlements situated west of the Someș River, some of them with a better access to the city and others characterized by a high degree of isolation. The only local center is Someș-Odorhei, with a high communication potential.

3. The **settlement subsystem of Cehu Silvaniei** extends over the entire Sylvania Hill area (The Hills and the Valley of Sălaj). The closest links with the small polarizing center are held by the villages that belong to the centre, and than by those of the communes Sălățiș and Buișă from Benesat commune. Westwards, the subsystem reaches out beyond the boundary with Satu Mare and comprises 13 settlements. Three quarters of the villages are middle-size demographic villages while the only communal center - Sălățiș - has little under 500 inhabitants.

4. The **Șimleul Silvaniei subsystem** intrudes with its northern and central parts in the Sylvania Hill area holding 15 villages, four of which are communal centres. Most of them are oriented toward the Crasna Passages (five villages from Măeriște) and the Barcău Passages (Ip). The others are more isolated within the Camăr Hills (Camăr and Carastelec) or in the vicinity of Măgura Șimleului. Although Camăr and Ip. belong to the large rural

settlement category, the middle-sized settlements prevail, and the small settlements are also existent.

5. The *Sărmășag settlement subsystem* stands out due to its lignite exploitations and due to its role of railway and road junction point, as Sărmășag represents the only important rural settlement (5 thousand inhabitants) in the Sălaj area. It includes several villages which converge towards Crasna Passage and the villages from the highly isolated Chieșd commune.

During the past decades, when the lignite exploitations enjoyed a greater growth, Sărmășag attracted a significant amount of work force from the communes oriented towards Șimleul Silvaniei. The role of Sărmășag within the subsystem was considerably diminished during the last decade as a consequence of the decline of mining activities and further caused the decline of its relationships with more peripheral settlements.

The subsystem with its 15 settlements coincides with an area which does not resent a direct urban influence and consequently, this situation leads to an intense migration process, which also accounts for the high number of small settlements (40%). Three big villages are also part of this subsystem.

B. The *settlement system polarized by Oradea* on the territory of the studied region, comprises its north-eastern part as well. Two subsystems along with a small part of the Suplacu de Barcău subsystem can be identified.

6. The *Suplacu de Barcău subsystem* includes 6 villages from the exterior of Barcău River loop (on the right bank). The polarizing phenomenon around Suplacu de Barcău is generated by petrol processing and exploitation activities.

7. The *Marghita subsystem* is the most important subsystem from the south-west of the Hills of Silvania. It includes 22 rural settlements, which belong to five communes and to the administrative territory of the town.

More important from the demographic potential point of view are the middle-sized villages (Viișoara and Buduslău, communal centres) located in the northern part. Petreu is the most typical suburban settlement situated in the proximity of Marghita, registered as the only settlement with over 1500 inhabitants. Although the other settlements from Abrămuț commune stand out for their petrol exploitation, which favoured highly intensive links with Marghita, they record a relatively low number of inhabitants. The agricultural resources of the villages west and north of Marghita are high, and are capable of ensuring the necessary food supply and a part of the work force employed in the town.

However, the rural settlements from east and the north-east of Marghita, grouped within the Abram, Boianu Mare and Viișoara communes, are mainly small and very small. The most frequent cases of settlement regression and of settlements with less than 100 inhabitants are encountered in this region.

8. The *Săcuieni subsystem* represents the south-western extremity of the region, in the Ier Passage and its vicinity. The polarizing center, Săcuieni, stands out as the highest demographic potential of this rural region (7260 inhabitants), as a significant services provider (especially commercial and communications) and a manufacturing capacity.

The subsystem mainly gathers middle-size villages from the communes Săcuieni, Cherechiu and Sălacea. Small or very small villages are non-existent. These settlements have a particularly high agricultural potential.

9. The *Diosig Settlement* (6200 inhabitants), situated near Săcuieni, on the route to Oradea, cannot be included in the above-mentioned subsystem, because of its strong links with the county capital and because of its high demographic and economic potential (almost touching that one of Săcuieni). Furthermore, it can hardly be considered a center of a

different subsystem because of the attraction exerted by Oradea, which affects the cohesion of several settlement subsystems. Thus, the settlements from the extreme southwestern edge of the region belong to the Oradea settlement subsystem.

C. The **settlement system from Satu-Mare County**, centered around its capital, includes even less concentrated parts from the Sylvania Hills, according to its strong rural character and, also to its marginal position within the county.

10. The ***Tășnad subsystem*** has as a polarizing center a small urban settlement (8200 inhabitants) which attracts rural settlements from Tășnad's Piedmont villages Pir (over 1600 inhabitants) and Sărvăzel from its western extremity develop important links with Carei as well. The other villages are encompassed by the communes Săuca, Cehal and Săcășeni, by the administrative territory of Tășnad.

The cohesion of the subsystem is poor; the links with the small polarizing center being accomplished through a relatively slightly modernized infrastructure (except the one from the northern periphery). The village-town links are dominated by food and work force supply, while the reverse link, town to village, is characterized by a strong commercial and transportation character.

11. The ***settlements from the Hillocks of Codru*** and those from the valleys of their south and southwestern parts do not form a system or a subsystem. In general, the mass and energy flows are channeled along transversal axes, concentrating either at the hill peripheral region towards E81 highway (Supur – Beltiug - Ardud) and then towards Satu-Mare, or following separate routes towards the county capital. The depopulation of this territory was very intense between the '60 and '70.

The southern villages are included in the Hodod, Bogdand and Supur communes and the central and northern ones in the Socond, Beltiug, Ardud, Viila Satu-Mare and Homoroade communes. The mentioned area comprises 34 villages, from which 8 are communal centres.

One of the four most extended rural settlements of the region - Ardud (4100 inhabitants) is situated at the periphery of Codrului Hillocks. This can be considered as a commune - polarizing center, but because of its proximity to the county capital, which generates a strong attraction from the hillock region on several axes and, generally, as directly as possible, it cannot form around it a very clear subsystem. There are also many large villages - Viile Satu Mare (2000 inhabitants), Beltiug - and upper intermediate size villages.

12. The ***Poiana Codrului subsystem*** includes the lowest number of settlements (seven). Its individualization depends on the activity of the glass factory from Poiana Codrului, which attracts the work force from the nearby villages and enhances the demographic growth of the town. Similarly, it determined a development of the service industry.

The largest number of villages is gathered in the communes Crucișor and Bârsău. The relatively balanced classification of the villages follows their demographic size. Bârsău de Sus (almost 2000 inhabitants) and Poiana Codrului (1570) are large villages. It is noteworthy, however, that Poiana Codrului is not a communal centre.

D. The **settlements from Codrului Piedmont**, the northern part of the Hills and the Sălaj Passage - situated almost entirely in Maramureș County - are polarized by Baia Mare.

13. The southeastern part of this area is similar to the former subsystem, the ***Ulmeni subsystem***. The similarities mainly concern the number of settlements (eight), the presence of some industrial objectives in the polarizing center (including the following branches: building materials, textiles - ready made clothes, food industry, wood industry) and

demographic potential - Ulmeni - holds 1670 inhabitants. There are also differences which regard the diversification of services in Ulmeni, and, especially, its high communication potential as compared to Poiana Codrului.

Almost all the polarized villages belong to the Ulmeni commune, to which Benesat (Sălaj County) must be added with a work force mainly oriented towards Baia Mare and Ulmeni. Up to a certain extent the Ariniş village was also (from the inferior passage of Someş River) attracted, but the considerable diminution of the railway transportation on the route Cehu Silvaniei - Ulmeni creates a similar background to the settlements from Codrului Piemont.

The middle-sized villages prevail. The subsystem is connected to Baia Mare by both railway and highway.

14. The *settlements from Codrului Piemont* share similarities with those of Codru Hillocks due to their position on the transversal valleys and to the links of their secondary roads to the main road at the base of piedmont. These wind through the inferior flow of Sălaj River and then through that of Someş River which crosses near Ardasat, linking it to Baia Mare. These settlements do not form a unified system because of the poor links between them. Although the communication system with Baia Mare is complex, it is more intense only with regard to the villages from the Someş Valley and it is diminished towards Culmea Codrului.

The settlements from the interior of the piedmont have a relatively high degree of isolation, being concentrated along the tributaries of Sălaj. Those from the piedmont bottom belong to the communes Ariniş, Sălşig, Fărcaşa, Ardasat. They continue in the villages from Pomi commune, which has a more privileged position to the county capital.

The mentioned area holds 10 communal centres and 17 villages which belong to them. The big settlements (1500-2000 inhabitants) have quite a high weight and except Băiţa de Sub Codru - they align along the Someş.

In conclusion, there is no unitary settlement system within the Hills of Silvania, but only partial or local systems (subsystems). These have no well-defined boundaries, being exposed to changes and depend on the changes and depend on the changes which affect the potential and economic structure of the settlements.

The prevalence of partial systems is revealed by the polarization of 40% of settlements by exterior centre.

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