CITY PLANNING, PLANNING OF VILLAGE SETTLEMENTS

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PECULIAR PROPERTIES AND POSSIBLE WAYS OF IMPROVEMENT OF CURRENT FOURFOLD VILLAGE SETTLEMENTS CLASSIFICATIONS IN REPUBLIC OF SERBIA

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Statement of the problem. At the current moment, a system of typological classification of village settlements in Republic of Serbia is made out of four independent classifications, which are only loosely tied to each other. These classifications are based on: the way of settlements' occurrence, settlements' urban-morphological features, its size, and its function inside a broader set of settlements.
Results. Summed up, the results of all four typologies create an abundance of input information for a later process of urban planning and design: they make it sluggish, and so, uneasy to handle. This is especially noticeable in large-scale spatial planning, which strongly relies on spatial diagrams, so it is in the need of concentrated information**.** Having in mind all aforementioned, the authors took the liberty to try to optimize the current fourfold classification system. The optimization was done through checking the output data relevance in context of modern urban planning and design workflows, and assuring, that there is no overlapping information.
Conclusions As a result, a brand new, purified and optimized village settlement classification was proposed, along with short demonstration of its practical use.

Key words: rural, settlement, morphology, typology, classification, border, planning, design, Serbia

Introduction. The main characteristic of built environments' urban development in Republic of Serbia (RS), regardless of whether it is an urban or rural area, is discontinuity of its development. It is due to the dynamic history of Balkan Peninsula, that a tremendous amount of Serbia's village settlements was occasionally destroyed (completely or partially), deserted, again colonized, or simply moved to another place.

This peculiar situation has spawned an abundance of village settlements whose properties are often very difficult to properly identify and define, not to speak of matters of their typologization. For this reason, there is a current professional practice among architects and urban planners in Republic of Serbia to analyze their subject (or subjects) from four different points of view, in order to properly classify it[1]. Each of those points of view represents, in fact, an independent classification — which clearly leads to an informational overload.

Although there is no question, whether plethora of information is better than lack of it, if we take into consideration a time constraint of a design process, too (which has always been an extremely important and unavoidable factor) — there rises a question: is there a way to systematize typology of Serbian village settlements in another, simpler way, without reducing its' quality?

1. Current state of affairs. In order to find an answer to the above-given question, in this paper we will show all four currently used classifications with brief explanations, expose their strengths and weaknesses, and try to offer a possible pathway for a solution of this, often handicapping, professional practice. Classification methods are following:

1) Classification by way of settlements' occurrence;
2) Classification in accordance to settlements urban-morphological criteria;
3) Classification by settlement size (purely demographical characteristic);
4) Classification by settlement function (inside a broader settlement system[2]) [13, 17, 18].

According to the first classification method, the one based on the **way of settlements occurrence** (Classification 1), villages in Republic of Serbia can be divided into three groups:

1) Systematically developed (planned) settlements;
2) Subsequently re-planned settlements, and;
3) Spontaneously formed settlements. [13, 17] (Fig 1, 2).

Systematically formed settlements are, with handful of exceptions, always located north of the rivers Sava and Danube (Autonomous Province of Vojvodina, or APV), and were formed by a direct intervention of the authorities (Austro-Hungarian planification of Vojvodina in the 18th century)[3]. During that process, existing, spontaneously formed and freely-planned settlements were de-settled, and subsequently destroyed. In current moment, beside systematically formed, there absolutely no other village types on the territory of APV[4].

[1] Usually as a preface for making planning documents or landscape development projects.
[2] Russian: "a settlement system".
[3] For better understanding, it is very important to mention that territory of Vojvodina was part of the Austrian Empire (later Austria-Hungarian Empire) from 15th to 20th century, with a brief period of Ottoman reign in 17th century. Hence its Central-European attributes in architecture and town-planning.
[4] Not counting weekend suburban colonies. Russian "dacha (summer house) settlements").

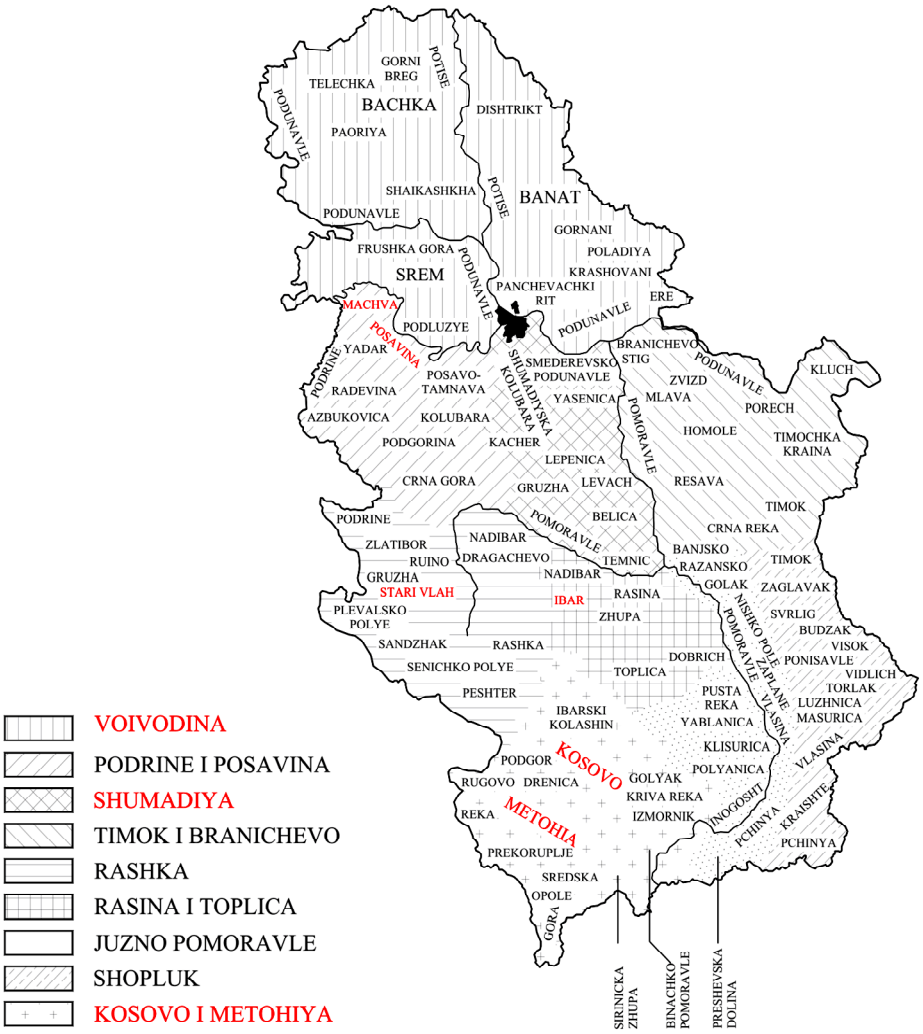

Fig. 1. Geographical entities in Republic of Serbia. Those, mentioned in text, are dyed in red

Spontaneously formed settlements, on the other hand, are located exclusively south of the mentioned rivers (Serbia Proper and the Autonomous Province of Kosovo and Metohija). They are most numerous of all, and to this day they in a great amount follow their ancient structure and street matrix.

Subsequently re-planned settlements represent a transitional form, from the spontaneously formed villages to the systematically planned ones. They owe their current urban grid to the efforts of 19th century Serbian authorities to model villages in Serbia Proper (mostly flatland regions of Machva and Posavina, as they are geographically most similar to Vojvodina) according to those in neighboring Austro-Hungary. In other words, the urban tissue of subsequently re-planned settlements was created spontaneously, but in certain period of time, due to the influence of an external factor, it endured so many significant changes, that its characteristics do not fit any of the aforementioned groups any more.

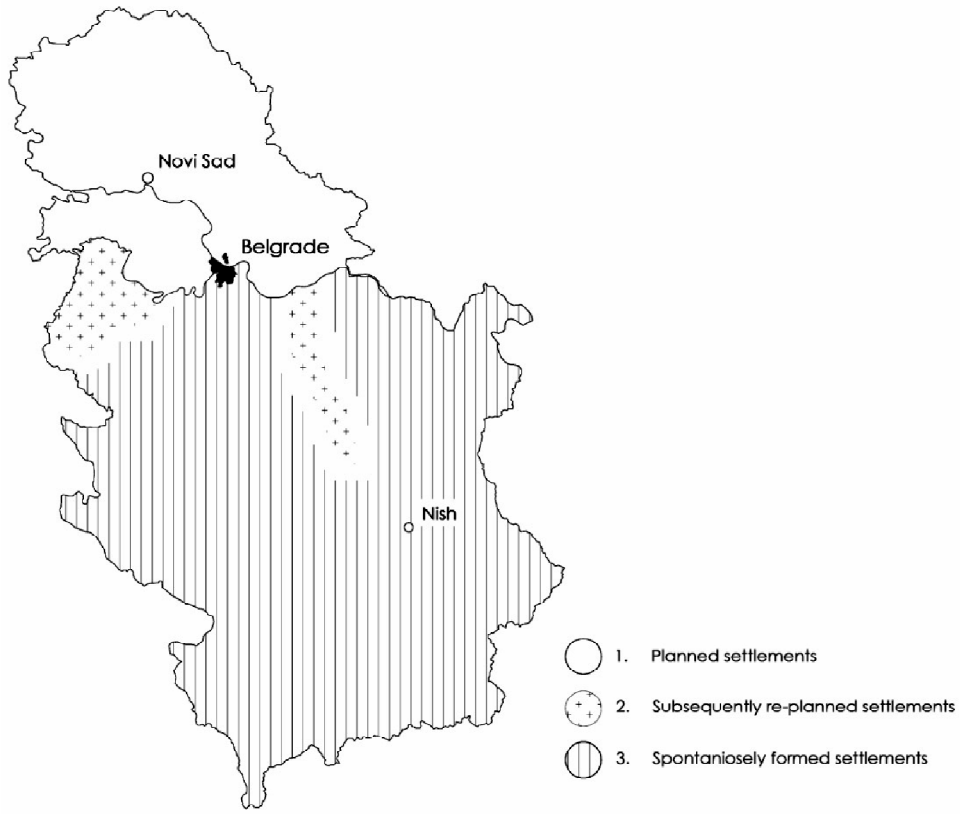

Fig. 2. Spatial distribution of village types, according to their way of occurrence [13]

Typology by urban-morphological characteristics is based on the analysis of built environments' basic elements. Without them, it is not possible to properly understand any settlement, rural or urban. Since urban morphology represents a "scientific discipline that deals with the study of genesis and further development of the form of built structures and open spaces, in urban environment" [8], classification by this method has an extremely important role in further spatial development of a village[5].

The reason for this statement lies primarily in the fact that, by tracking the development of the settlement over time, it is possible to identify a pattern which is aforementioned process following, and to adequately direct it in a desired direction [1]. The main criteria for classification of settlements by this typology are:

— The possibility or impossibility to determine settlements' boundaries[6];

— Street matrix;

[5] Morphology, as a form of research, represents an integral part of many scientific disciplines, and is used as a method, explaining phenomena and processes related to creation of specific shapes and forms. The essential characteristics of all morphological investigations are studying the principle of common shapes and structures, and establishing common morphological characteristic of the elements (comparative analysis) [1].

[6] By this, we speak of distinguishing of housing and agricultural lands.

— The gross density of the settlements' built environment;
— Lots' (households') size and shape, and in some cases, distances between them;
— Building patterns [8, 13, 17].

In accordance with aforementioned criteria, village settlements can be classified in two basic types: settlements with compact structure, and the ones with dispersed one.

Settlements with dispersed structure are divided into three sub-groups, each of them named after the geographical region in which it arose. These are Stari Vlah, Ibar, and Shumadiya subgroups. As we are able to see in (Fig. 3), they in fact represent three development levels of the same settlement type. Their main characteristic is that there is no way to pinpoint an exact location of a settlement, or even a village center, because households are scattered across a wide area. Sometimes, distance between them can be up to 2000 m. Also, there is one regularity: all dispersed villages are located south of the Sava and Danube rivers, and were formed spontaneously.

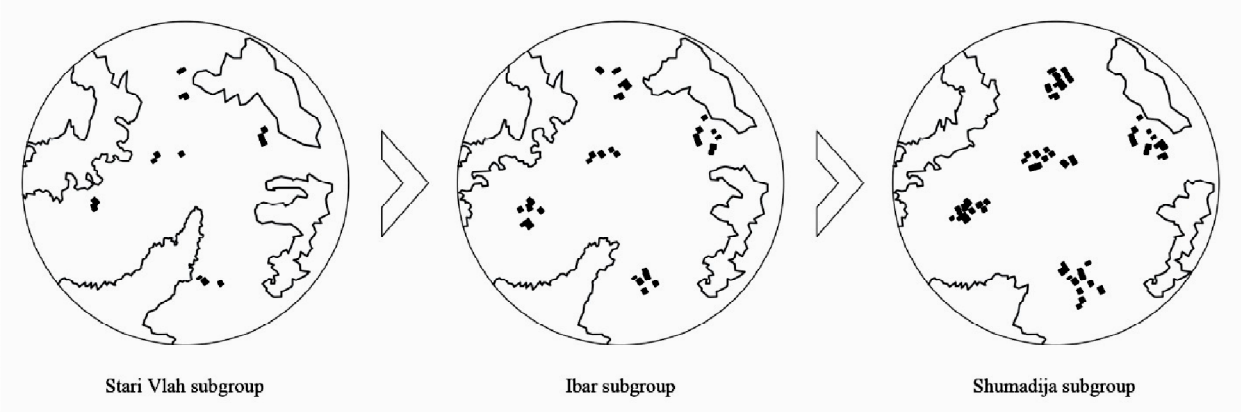

Fig. 3. Spatial evolution of dispersed structure village settlements, from Stari-Vlah settlement, trough Ibar subgroup, to Shumadija-type village

Villages with compact structure have two subgroups: semi-compact and completely compact village settlements. Semi-compact villages are settlements with a medium population density of 20—25 p/ha, most often with duly formed household lots. They include: systematically developed (Voivodina), subsequently re-planned (Machva, Posavina), and spontaneously formed villages in the Velika Morava river valley (which are characterized by an irregular street network and household form).

Completely compact settlements, on the other hand, represent a characteristic of eastern and southern parts of Serbia Proper, together with Kosovo and Metohiya province. There are three basic subtypes: dispersed settlement (arose as a result of satellite-type development of exis-

ting villages dye to overpopulation; they are characterized by central urban area and several hamlets[7]), roadside settlements (prominently longitudinal and established along the dominant communication), and plain spontaneously formed villages with compact structure. In addition, during last few decades, we are witnessing a rising of another village type: slums[8] — formed due to large migration flows to the biggest urban centers (Fig. 4).

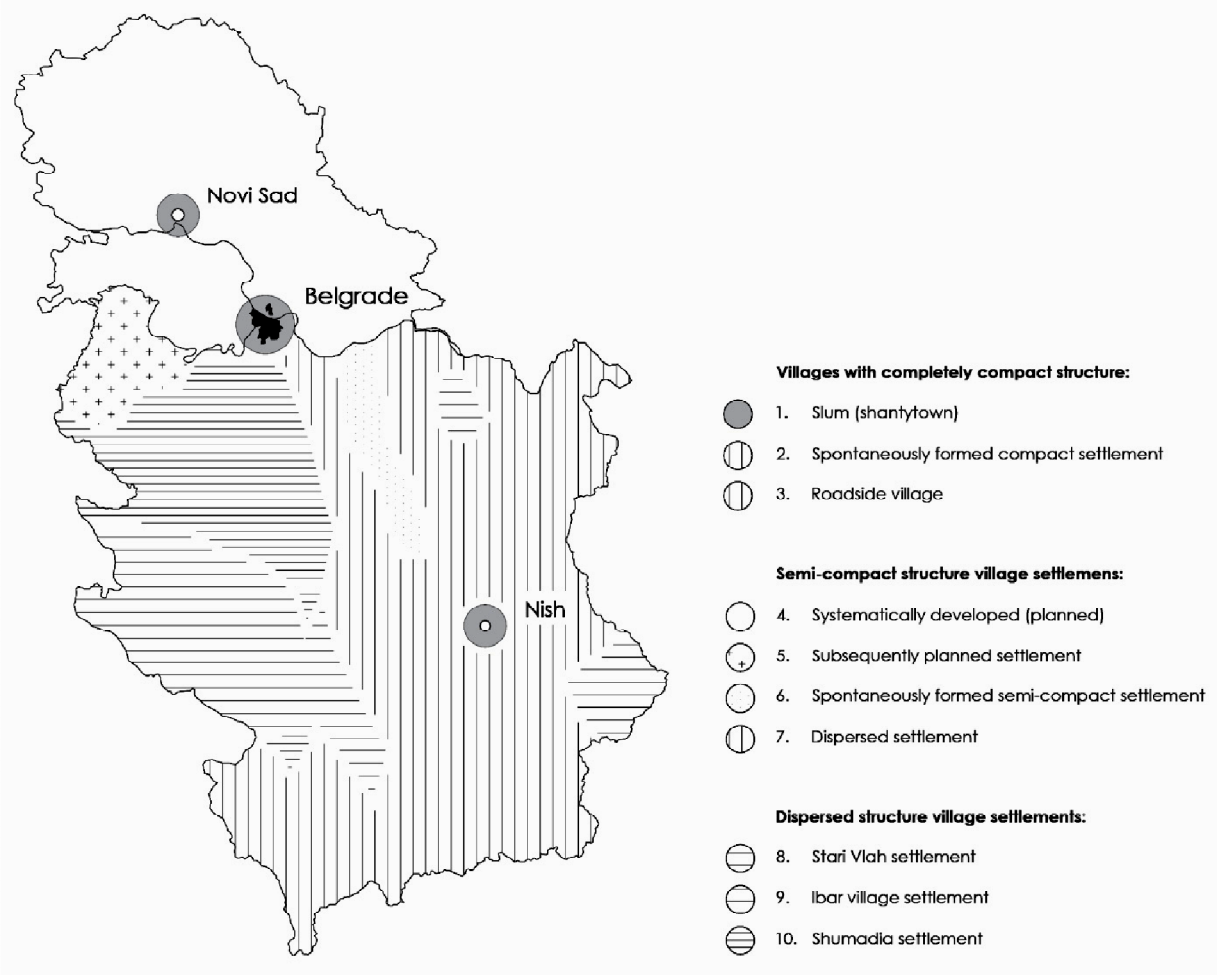

Fig. 4. Spatial distribution of village types, according urban-morphological classification

In typology by settlement size, the number of inhabitants represents a major criterion. Therefore, according to it, village settlements of Serbia are sorted into:

— Small settlements:

- 0—100 residents — M1;
- 100—500 residents — M2;

[7] Hamlet is a small human settlement. Usually, it is a subdivision of a village, his satellite entity. Is equivalent to Serbian noun «заселак», or Russian «хутор».

[8] Also known as “shantytowns”.

— Medium settlements:

- 500—1000 residents — C1;
- 1000 — 2000 residents — C2;

— Large settlements:

- 2000—3000 residents — B1;
- More than 3000 residents — B2 [13, 17][9].

Although, since settlement size represents a changing category, we are ought to take into consideration data about the settlement demographics, too. So, if the population index between two censuses (usually done in a 10-year span) is greater than 100 %, the settlement has a positive demographic development. If it is between 80 and 100 %, the development stagnates, and if it is lower than 80 % — the development is negative.

As for the spatial distribution, the largest villages are located in the plain or gently rolling terrain of Vojvodina, Machva and Posavina (mostly C2 and B1), while the smallest ones are scattered exclusively in the inaccessible mountainous areas in the south and south-west areas of Republic of Serbia (M1, M2). On the other hand, the demographic trends do not depend only of a landscape, but from a multitude of interdisciplinary factors. Hence, the villages with positive demographic development are mostly spread around the strong economical centers: capital Belgrade, and cities Novi-Sad and Nish [8].

In categorization by a settlement function, the core criterion is a role of the village in broader set of settlements. That role can be primary or special. Villages with primary functions are divided into:

— Primary villages, which do not have any other function beside agriculture;

— Villages with village centers, which, in addition to the core activity – agriculture, also possess certain additional features, embodied trough school, police station, local office, health center, post office, grocery store, etc.;

— Centers of the village settlements set, which, compared to the previous type, have more developed additional functions (primary and secondary school, church, shops, café), but the primary activity of the population is still agriculture[10] [17] (Fig. 5).

[9] Code explonation: „M“ is derived from the Serbian word ’’мали“ (eng. – “little”, рус. – „маленький“), „C“ from the word „средњи“ (eng. – “medium”, рус. – „средный“), and „B“ from the word „велики“ (eng. – “big”, рус. – „большой“).

[10] They possess notable differences, depending if the settlement is located in Eastern or Western part of Serbia, as they developed under the influence of two separate cultures: Slavic (West Serbia) or Oriental (East Serbia).

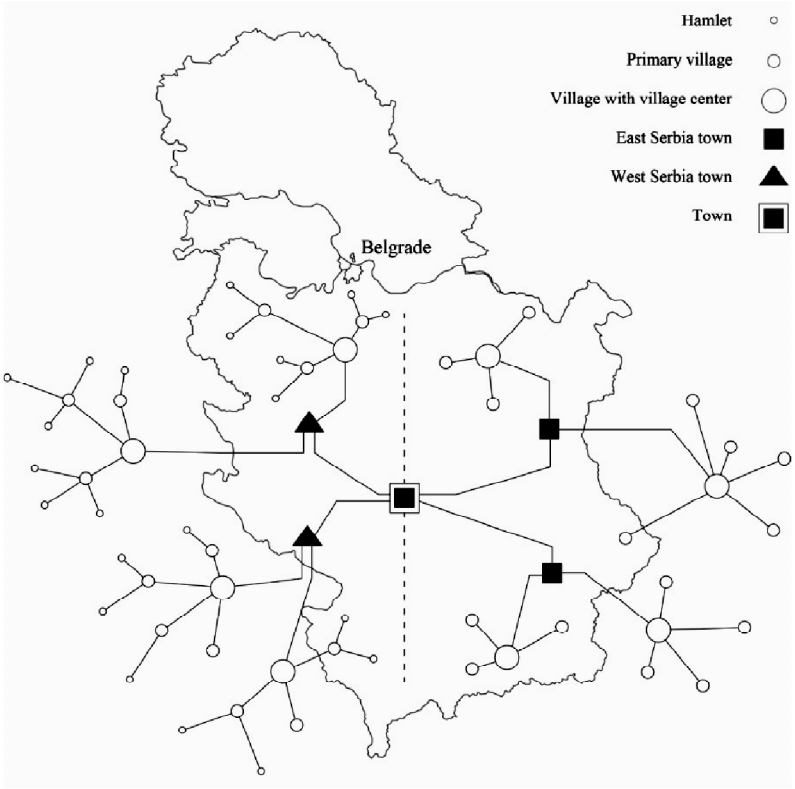

Fig. 5. Functional connections of villages in broader settlement set: scheme for East and West Serbia. Made according to map from [17]

Special village settlements are settlements formed around natural sanatoriums, hotels, hospitals, hunting and fishing areas, etc. Their dwellers profession does not refer to agriculture, and they are not necessary for the functioning of a wider settlement network. Also, due to features of the complexes around which they are formed, they are often only temporarily inhabited[11].

2. Optimization of classification methods. Having in mind all the information presented above, the simplest and most common solution would be to merge all four classifications into one. However, does it make any sense in this particular situation? If we do the calculation, we will see that that would produce more than 2000 different village types, which is clearly out of consideration[12]. So, in order to narrow down number of possibilities as much as possible, we are ought to make a more profound analysis of two situation aspects:

— Mutual relations between the information that the concrete classification provides and the process of urban design;

— Actual relevance of the particular classification itself.

[11] Especially nowadays, when the transportation and transportation links are greatly improved.

[12] $3 \times 10 \times 6 \times 12 = 2160$ – simplified mathematical calculation, without taking into account relations between some types and subtypes (for example, no dispersed structure settlement is systematically developed).

In this context, classifications according to the village settlement origins and village settlements' role in broader set of settlements are of our special interest. We'll start with a first type of classification, based on a village settlement origin (1).

The sole question is: is there a way, that origin of a settlement can influence street pattern, building lots size and shape, settlement's function? No, there isn't. Although it can imply some conclusions, it will absolutely never be able to offer a full scope of information needed by urban designer, not to speak of quality of those information. That is why typology according to urban-morphological criteria was formed, to provide all the relevant information, not only about the current stance of a settlement but its' development trough time, also[13]. Consequently, the fact whether the village arose spontaneously, or was built and settled by authorities — is in this case irrelevant, and therefore, can be neglected.

As for the classification by a village settlement's function (Classification № 4), there are three factors of interest that we are ought to pay attention to:

— First, during the several last decades, we have witnessed a tremendous development of transport and transportation lines, not only in Republic of Serbia, but in far larger, global scale. Daily migrations became a worldwide practice, thus nowadays it is not unusual, but often very common, to travel 30 to 60 minutes from home to work and vice versa. In country of 88.361 km², with population density of 92 p/km² [15], it is without question, that there is a plethora of working force to be found even within 30 km (30 min drive) radius around every randomly chosen point in the country. Subsequently, there is no more need for dense territorial concentration of working force, which is now able to be scattered across broad area, and to concentrate on one place only in working hours. Therefore, special-type villages, if there is still some left, will without any doubt, cede their existence in nearest future;

— Second, according to a recent study, only 12 % of the people, living in RS village households, are engaged exclusively in agricultural activities. For the other 88 %, agriculture represents itself only a secondary activity [15]. Having that in mind, nowadays there is hardly left any difference between "special" and regular-type villages;

— Third, a key factor in arranging social and communal infrastructure[14] in a settlement isn't its role in a broader set of settlement, but it's population, which further sets up it's place in a broader settlement network. Nature and scope of settlement's social, communal, commercial,

[13] In other words, it also has a time constraint — hence the term 'morphological' in her name.

[14] We have in mind existence administrative buildings, grocery stores and magazines, primary and secondary schools, churches, police stations, gas stations, etc., and also quality of infrastructure.

and other non-housing and non-agricultural infrastructure comes either from laws and regulations that are tightly-connected to a population parameters[15], or from consumers distribution, which is, again, tightly connected with the population quantity, density and purchasing power. Therefore, there is no reason for classification by the settlement's role in broader set of settlements not to be neglected, too. That leaves us with two typologies, which actually can be easily merged:

1. Typology according the urban-morphological characteristics (Classification № 3), and:
2. Typology based on the settlement size (Classification № 4).

Having in mind our previous conclusion, that all the information necessary for processes of urban planning, urban and architectural design (in rural areas and settlements), is contained inside these two, and there is no any relevant information left aside by neglecting others, we are able to come forward with process of their merging.

Although initial, empiric calculations offer us whole 60 (6*10) possible village types, the whole matter is in fact far simpler, and, in practice, their number does not exceed 40. It is due to a fact, that, in reality, there are no Stari Vlah villages above level C1, and there are no Ibar-type villages above level C2. On the other side, systematically developed and subsequently planned villages are never smaller than C1, and so on. Therefore, mutual exclusiveness of several factors, that are fundamental to type-forming, shrinks the overall sum to 38 village-types, as is shown in the chart below (Fig. 6).

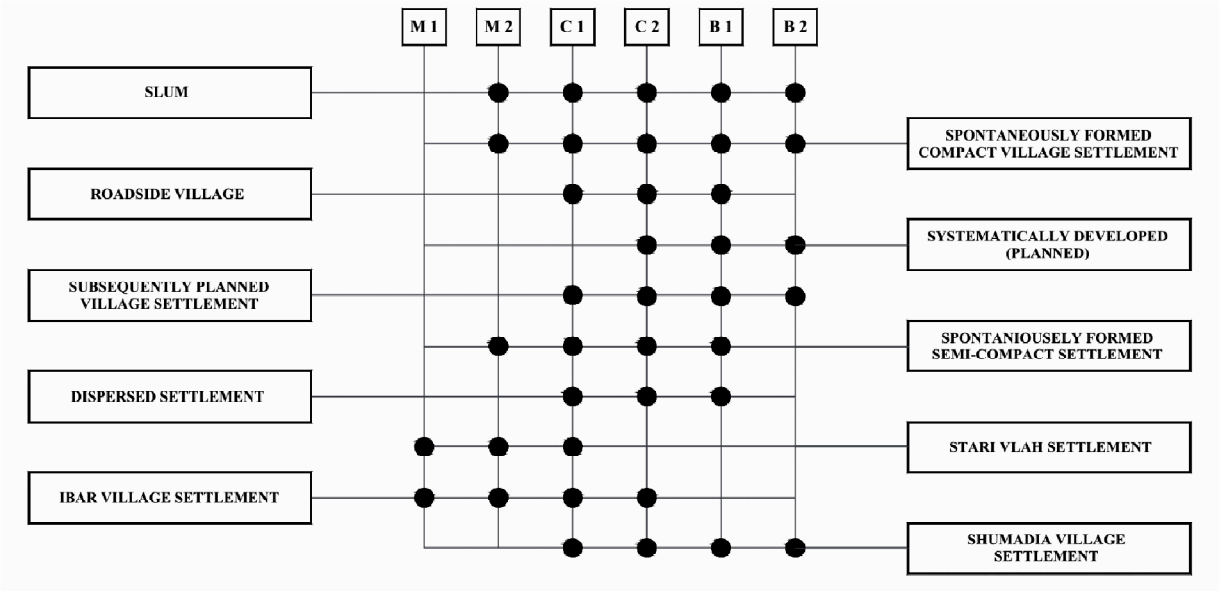

Fig. 6. A proposed classification scheme of village settlements in Republic of Serbia

[15] In case when Government is investor.

Conclusion. Advantages of the proposed village classification optimization are many, and are both theoretical and practical.

First of all, in practical domain, the proposed optimization would greatly improve the overall process of village and rural area planning. Right now, at the end of the current, fourfold classification process, a so-called "description mark" is given. This mark can be up to several sentences long, and often contains duplicated data, as great deal of information from different classifications is overlapping. Besides the fact it makes settlement information hard-to-present in spatial diagrams (very important component both in early design stages, and in final presentations), it also often confuses the designers themselves. Consequentially, in most cases, it either prolongs the design process, or affects its overall quality. On the other hand, having in mind that an end-result of the proposed re-classification looks like this: subsequently re-planned village, B2; roadside village, M1. Stari Vlah village, C2, it is obvious that it allows much more freedom and information-clarity in spatial analysis and presentation, as can be seen in (Fig. 7).

As for the theoretical impact of the proposed optimization, we believe that it would positively affect the studies of Republic of Serbia's rural areas and settlements, as it cuts of a great deal of irrelevant and overlapping information, subsequently allowing researchers to speed-up their research and focus their work not on acknowledging and describing current state and investigate its way of occurrence, but to the future development of rural areas and settlements.

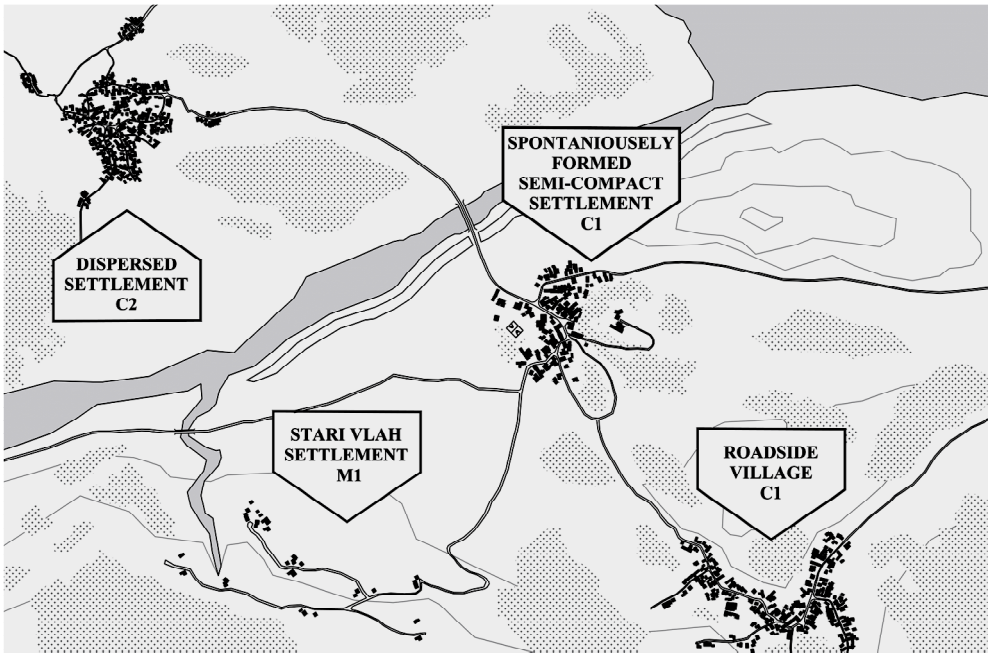

Fig. 7. An example of rural-design spatial diagram, improved in accordance with systematization, proposed by authors

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