Centre for Research on Settlements and Urbanism

Journal of Settlements and Spatial Planning

Journal homepage: http://jssp.reviste.ubbcluj.ro

Functional Zoning of the City/Village Area and Its Contribution to the Sustainable Development of Settlements

Vasile ZOTIC[1], Diana-Elena ALEXANDRU[1], Viorel PUIU[1]

[1] *Babeş-Bolyai University, Faculty of Geography, Centre for Research on Settlements and Urbanism, Cluj-Napoca, ROMANIA*

E-mail: zoticv@geografie.ubbcluj.ro, diana.alexandru@geografie.ubbcluj.ro, viorel_puiu@geografie.ubbcluj.ro

Keywords: *functional zoning, building regulations, land use regulation, urban planning, sustainable development*

ABSTRACT

Functional zoning of the city/village area is a mandatory step in settlements planning. This is a complex conceptual and technical procedure carried out once with the elaboration of the General Urban Plan (GUP), whose component is, and on which the entire internal organization of a settlement depends. The settlements' internal structure is based on a variety of natural, technical and socio-economic elements, between which deep systemic relations are established. This complex geo-systemic structure is nothing but the human habitat. Like other geo-systemic structures it is also subject to planning and organization in order to improve the housing quality. The quality of human habitat primarily depends on how the division and distribution of internal structural elements within a locality is made. In the past this was considered a secondary factor due to the limited technical possibilities of the human factor's intervention, the dominant factor being the location in the territory. However, the fundamental question is how to achieve this delineation of the city/village area, procedure that is called functional zoning, and what are the principles, methods and means used. Establishing the general urban characteristics ultimately depends on the development of settlement, be it rural or urban, as well as on the quality of the zoning process, which consists in: determination of zone types, their size and location within the city/village area. Therefore, when we speak about sustainable development of settlements we must take into account the way we realize the functional zoning of the city/village area.

1. INTRODUCTION

The fundamentals of settlement development are given by the association of ownership with the right of use and its implications resulting in the economic, social and politic context. The lack of functional zoning of the city/village area, seen as the control system of land use, generates land use conflicts among urban stakeholders, fears of owners regarding the preservation of the property value and determines the loss of local values, through intensive use and land speculation. We also add the impossibility to control the development process and make the best decisions on the internal organization of settlements that would be in the benefit of the community as a whole as well as of the individual or the group. Functional zoning is also used to eliminate the negative effects of pollution, jamming, noise, and the unsightly buildings.

If at first functional zoning was used only to regulate these issues, now it has become a tool for generating and deciding on the separation of public space into: green spaces, farmland and nature reserves. At the same time, it has the ability to reduce costs of implementation and administration of infrastructure within the city/village area by optimizing the use of the existing facilities and by linking public investments with land occupancy density[1] (plots) [2] and with buildings

[1] It refers to the ratio of the number of occupants to the floor area of an individual habitable unit. Occupancy rate is an important measure in

proposed through zoning. The limited land offer in the city/village area triggers higher prices, inaccessible to the disadvantaged economic groups, thus leading to their exclusion from the housing market.

In addition, the desire to intensively use land generates conflicts with the established neighbourhoods caused by the infringement of sanitary regulations, pollution, public space overcrowding with cars, destruction of green spaces, damaging the architectural ensembles by mixing new discordant styles, etc.

All these issues are now constraints for the sustainable development of settlements that can be properly managed through functional zoning. This way, zoning becomes an instrument of local governance as its quality delivers and determines the quality of development.

2. FUNCTIONAL ZONING - MANAGEMENT TOOL FOR THE DEVELOPMENT OF SETTLEMENTS

Functional zoning can be considered a management tool for the development of settlements as it is the answer to the free land market system in controlling the negative effects that may occur from the association of some incompatible land uses. Land represents the support for development in case of any settlements. Although it has a limited character, it may provide a strong basis for development by using the appropriate management.

The legitimacy of functional zoning lies in the fact that private land market cannot develop without creating significant economic disadvantages to the current urban structure. The same analogical arguments are accepted in respect of the developed urban settlements, yet at a greater scale.

Because the system of land price is not affected by the negative external effects caused by new constructions in the neighbourhoods, functional zoning has created an administrative mechanism through which various land uses are technically controlled and legally supported. Since zoning influences land supply, there is also the risk that local authority should determine some price escalation on the market by underestimating or overestimating the land proposed to have a particular function.

Functional zoning, applied in order to regulate building density through standard urban indicators assigned for an area in the Urban Planning Regulation, indirectly determines the control on air and water quality, noise or pollution level determined by the traffic. Therefore functional zoning coupled with urban planning performance standards provides the local authority greater results with respect to the management and control of the development process of a settlement.

When referring to production functions, spatial zoning helped by the local tax policy (budget subsidies) achieves effective control on the dispersion of adverse effects towards neighbouring areas or even eliminates them entirely. The actions to discourage the location of industry in the city close to residential areas can adversely affect the functioning of the labour market on the one hand but can improve the overall living standard of the community and accelerate the development of transportation systems.

By excluding the urban functions that produce adverse effects to the current properties and by changing the level of intensity a property is used, zoning determines changes in the market value of properties, which is a phenomenon more intensely perceived and present in large urban settlements.

In terms of efficiency, zoning creates the opportunity to generate supplementary benefits and costs other than those determined by only removing the negative effects found in the development of settlements. Local Urban Planning Regulation associated with zoning can reduce the costs of public services by increasing urban density or by an extensive development of the urban area. If zoning decreases the urban density or limits the lot size, costs will increase. Moreover, following a sharp spatial segregation, accepted in terms of avoiding negative effects, a significant increase in traffic costs can be generated.

The correlation of functional zoning of city/village area with the local development strategy and with changes on the land, capital or labour market increases the management capacity of the local authority to decide, implement and subsequently control the development of settlements. If these aspects are overlooked then zoning becomes a local authority device for limiting choices and a political tool for the exclusion of disadvantaged groups affected by some economic and social conditions.

By establishing functional zoning as tool for sustainable development of settlements and the increasing interest for properly practicing zoning techniques support spatial planning in providing solutions for traffic, parking, pedestrian routes, and create proposals for improving the aesthetics and level of sun exposure of buildings that are declined or avoided by investors due to costs, yet they being appropriate in terms of spatial planning, building regulations and in benefit of the community. Facing the strength of homogeneous communities that will require the local authority the implementation of a unified control system, we understand that in a pluralistic society, with dispersed power centres, functional zoning cannot be used and implemented without appropriate political, financial and administrative support; only this way it can substantially contribute to the sustainable development of settlements.

building services design as it provides an indicator for estimating the services required.

3. OBJECTIVES OF FUNCTIONAL ZONING

Like any other action carried out in order to improve decision making, functional zoning is designed to achieve objectives through which this approach should produce the desired effects. Thus, among the key objectives zoning must achieve in order to generate sustainable effects in the development of settlements we mention the following:

a). Rationalization of lot coverage and land management in the city/village area. This is the first major priority and it is determined by the limited land supply. Without proper lot coverage and rational land management within the city/village area and on the outskirts in accordance with the settlements' development needs, local authority soon runs out of land, hence triggering several negative consequences for development, such as: higher prices, land speculation, investment blockage on the land market.

b). Increasing land use efficiency in the city/village area. This is the second most important objective given by the fact that land represents the support for the development of human habitat. Efficient land management is achieved by correlating the designated functional areas with the development opportunities and needs of settlements plus the compliance of Local Urban Planning Regulation[2] with these needs through urban technical provisions.

c). Functional distribution of structural elements in the city/village area. For a settlement to become functional and have possibilities for development through zoning, the current structural elements should be framed within functional areas and new areas should be designated in accordance with the development needs. Such distribution is aimed at establishing the functional configuration of the internal structure of settlements appropriate to the natural and economic function, residential facilities and urban infrastructure that should ensure an attractive structured habitation.

d). Maintaining public awareness regarding zoning regulations. One of the zoning objectives is to maintain the constant interest of the public institutions involved in the process. This goal is achieved by promoting clearly defined development objectives, structured by the overall development plan. If these objectives are not comprehensible, investors can be issued a permit for re-zoning through the Zonal Urban Plan, whose prescribed purposes would now be in contradiction to the regulations established by the General Urban Plan. For the local authority, the coordination of the zoning plan with the development plan is the critical point in the negotiation over land conflicts.

e). Controlling land use in the city/village area. Through the provisions included in the Local Urban Planning Regulation functional zoning regulates land use in the city/village area. Local Authority uses this control over the land use in the benefit of the community. Local authority's intervention is justified either to designate land for roads, streets, utilities and public services and green spaces or to control the costs and/or benefits from using a land lot. Since an uncontrolled land market does not provide benefits in order for a person to think about the costs or benefits he generates to community by his own manner of land use, local authority intervenes through taxes and subsidies. The importance of controlling the land in the city/village area lies also in:

- the completion of land use structure in the city/village area by designating land for other uses and public services (e.g. parks, playgrounds, parking lots, etc.) in which private investors are not interested;
- the efficient use of the current urban infrastructure, by adjusting urban densities to achieve optimum values and limiting the unnecessary extension of the city/village area that negatively affects the agricultural areas on the outskirts of settlements;
- the provision of land to the community members for residential, economic, leisure and transportation needs in order that future rational use would bring benefits that would reflect positively on the entire community.

4. FUNCTIONAL ZONING

Functional zoning delineates zones in a city/village in accordance with regulations issued by the local authority and establishes a set of regulations to decide the type of urban function for each of them [2]. It also includes general details on the location, size and form of the buildings, coverage level (FAR – Floor Area Ratio) and intensity of land use (SC - Site Coverage %) expressed by density indicators. Floor Area Ratio is expressed by the ratio between the building's footprint and the plot area on which the building is constructed, expressed in percentage. On the other hand, the intensity of land use (SC %) is expressed by the ratio between the total covered area on all floors and the total plot area. *The mathematical formula of these indicators does not include the surface covered of garages, underground facilities, terraces and porches as well as other unused spaces* [4].

Functional zoning consists in issuing the local decision of zoning in addition to another administrative procedure. Local zoning decision is made by a design specialist, as part of the General Urban Plan which is subsequently subject to approval procedures. This consists in developing a zoning plan (map) and a regulation for it.

[2] LUPR – Local Urban Planning Regulation. It supports and details the provisions given by the General Urban Plan, through regulations (permissions and restrictions), for the entire administrative area of a unit subject to planning.

"The zoning plan divides the city/village area into functional areas in accordance with the General Urban Planning Regulation" [4].

Fig. 1. The scheme of the zoning process [3, p. 11].

However, the Local Urban Planning Regulation annexed/appended to the zoning plan specifies the restrictions to be applied in each designated zone as well as the general information for their management. The administrative procedure consists in the approval/change of the provisions of the Local Urban Planning Regulation regarding consistent and inconsistent cases or on the structure of any Regulation's decision.

The zoning plan is the main component of the zoning process and it is established in accordance with the provisions laid down by the Urban Planning Regulation [5].

Under these regulations, functional zoning is graphically represented on the urban planning map at a scale of 1:5000 (1:10000 in exceptional circumstances), whose content is as follows:

1). Borders

a). Border of the proposed city/village area (including districts outside the city/village area).

b). Border of the administrative unit, by also indicating the neighbouring administrative units.

c). Other borders (national, county).

d). Border of the central area.

2). Functional zoning

a). Central area and other areas with complex functions of general interest.

b). Residential district (housing and complementary functions).

c). Public institutions and services district.

d). Industrial district (units/warehouses).

e). Agricultural district.

f). Public use area (cemeteries).

g). Area designated for municipal infrastructure.

h). Area for road and associated facilities.

i). Area for rail and associated facilities.

j). Area for ship movement and associated facilities (if applicable).

k). Area for flight and associated facilities (if applicable).

l). Water area.

m). Forest area.

n). Areas that require protection measures against natural hazards.

o). Unproductive land - development measures.

p). Special destination areas.

3). Roads

We will present the proposals regarding categories of roads coming into settlements or around them, ranking numbers and directions to nearby settlements (presented graphically, differentiated as existing maintained – proposed):

a). National roads.

b). County roads.

c). (Local) roads.

3.1). Streets

We will present the proposals regarding major network elements within the city/village area, name (designation), pavement, roads proposed for rehabilitation, bridges, proposed culverts and major road intersections to be modernized (presented graphically, differentiated as existing maintained – proposed):

4.) Regulations

a). Categories of interventions in functional areas.

b). Protected areas of historical, architectural and landscape value.

c). Protected areas based on health standards.

d). Temporary building restriction.

e). Permanent building restriction.

f). Development of green spaces.

g). Proposals for environmental protection.

h). Other rules.

5). Land use distribution (table on the map), table that is generally found in the text of the General Urban Plan (chapter of regulations) containing the land use in the proposed city/village area (compared with the land use distribution of the current city/village area (expressed in ha and %).

6). Priorities corresponding to the functional dysfunctions will be listed in the table.

For instance, we present the Urban planning map of Zalău Municipality, Sălaj County, Romania, on which we can observe all the components of such category of maps and which has become an instrument for sustainable development [7].

The text of the Urban Planning Regulation *provides information on terminology used, criteria, rules and control procedures of land use for each designated area mentioned on the map* [3, p. 12].

Local Urban Planning Regulation shall be applied to the city/village area, which is divided into distinct districts, and other districts outside it.

These distinct districts represent the support for the recommendations outlined in the Local Urban Planning Regulation as well as optional tools to lay down specific provisions regarding some functional areas with distinct features; also, they are closely related to the urban structure [5].

They have a conventional designation based on specific criteria, depending on the complexity and the development level of localities.

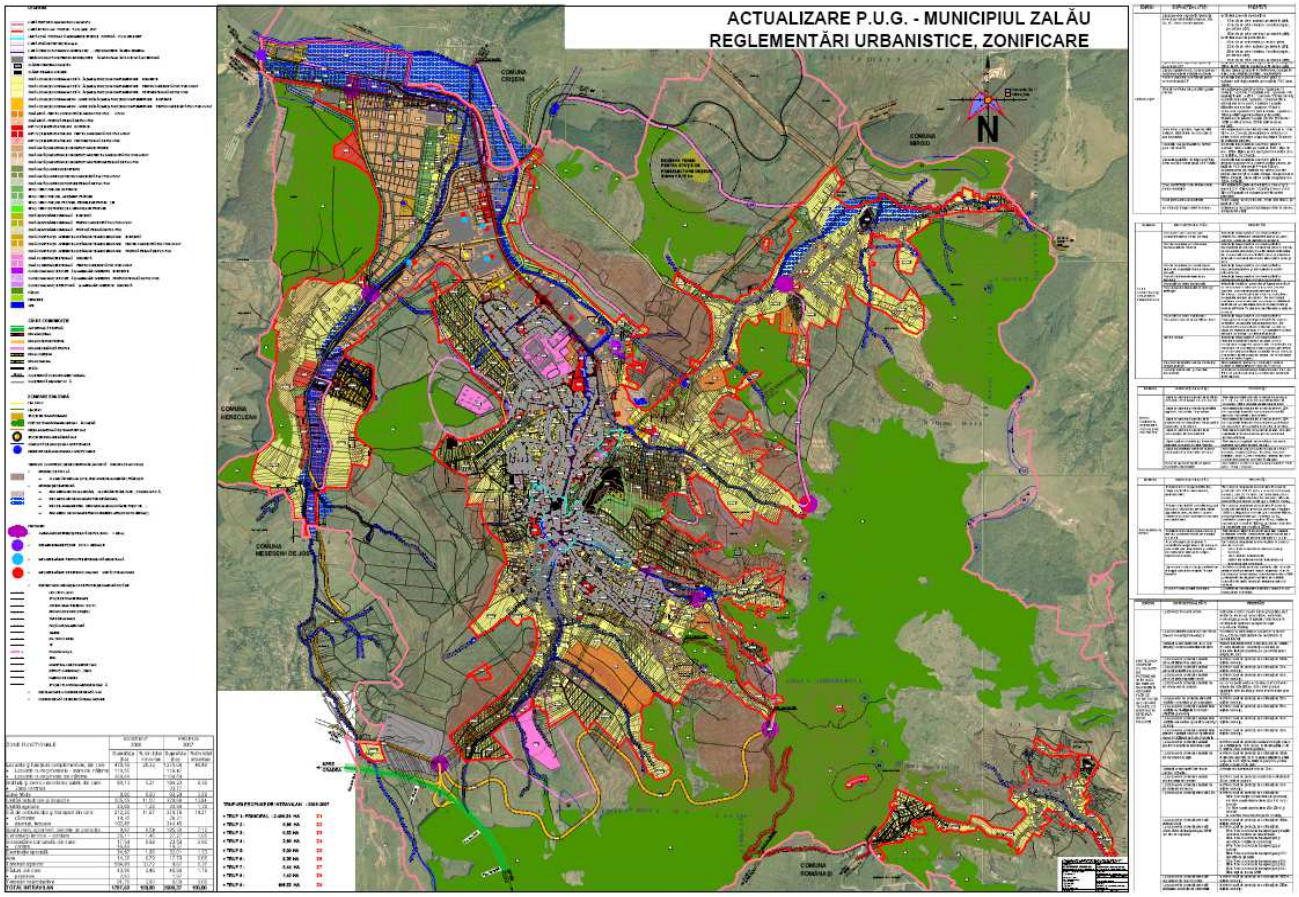

Fig. 2. Urban planning map of Zalău Municipality, Sălaj County, Romania [6].

The criteria considered for the delineation of districts are the following:

a). The existence of homogeneous areas historically, functionally or physically constituted.

b). Functional homogeny and interdependence, predominant functionality.

c). The presence of physical borders in the field: natural borders (water, forest belts etc.) built borders (streets, building sites, etc.).

d). Borders of cadastral parcels.

e). Types of intervention: regulatory uniformity, extension of city/village area, isolated districts outside it etc.

In case of districts with similar characteristics the same set of requirements can be formulated and implemented. In order to delimit and identify functional areas on the map there are used traditional color coding conventions (colours, shades, hatches) and a set of recommendations (abbreviations). The recommendations (abbreviations) used to indentify functional areas within the city/village area, are designated by the following letters:

L - residential use areas;

IS - institutional and service use areas;

ID - industrial use areas (facilities and storage);

A - agricultural use areas (facilities);

C - transportation use areas;

SP - public use areas (green spaces, protection belts, sport(s) and leisure facilities);

DS - special designated use areas;

GC - municipal use areas;

TE - municipal infrastructure area (water supply, sewerage, solid waste, sanitation).

The regulations and control measures on land use in each designated area specified on the map are given by provisions regarding:

a). Type of land use: it refers to the land use types within the city area. These vary from one locality to another. The general structure of land use allowed in the city is the following:

- residential use areas;
- institutional and service use areas;
- industrial use areas (facilities and storage);
- agricultural use areas (facilities);

- transportation use areas;
- public use areas (green spaces, protection belts, sport(s) and leisure facilities);
- special designated use areas;
– municipal infrastructure area (water supply, sewerage, solid waste, sanitation).

b). Area density: lot size, street lot line, lot type (corner, front, side - with access on two streets), building height, setback from property boundary, sun exposure angle[3], Floor Area Ratio (FAR), Site Coverage (SC%), maximum number of dwellings (or rooms) allowed per hectare, minimum number of square meters allotted for a house/room (sometimes it is specified the maximum number of people or families/hectare), ancillary uses permitted, conventional signs, parking requirements, standards on building quality, land bonuses offered by Coverage Site (CS%), if improved by the applicant, aesthetic, traffic or environmental conditions.

The following example presents the necessary details on the regulation's provisions for the residential area [8]:

Residential Area and Complementary Uses

Chapter 1. General provisions

Article 1. Residential area and complementary uses (RACU), as shown in the map of "*Economic zoning of the territory*" may include several designated subzones, such as:
- existing residential sub-zone of low-height buildings GF+1F+A (Ground Floor + 1 Floor + Attic) and complementary uses;
- existing residential subzone of medium-height buildings GF+2F+A (Ground Floor + 2 Floors + Attic); GF+3F+A (Ground Floor + 3 Floors + Attic) and complementary uses;
- proposed residential subzone of low-height buildings GF+1F+A (Ground Floor + 1 Floor + Attic) and complementary uses;
- proposed residential subzone of medium-height buildings GF+2F+A (Ground Floor + 2 Floors + Attic); GF+3F+A (Ground Floor + 3 Floors + Attic) and complementary uses;

Article 2. The dominant function of the area is residential.

Article 3. The complementary uses permitted in the area are the following:
- food and non-food retail of daily consumption – Aa[4] < 200 m²;
- various services rendered to population – Aa < 200 m²;
- pedestrian and vehicle traffic circulation;
- green protection spaces;
- household ancillary buildings;
- agriculture and decorative crops on the lot;
- municipal constructions and equipment.

Chapter 2. Functional land use

Article 4. Permitted uses: all types of constructions and facilities corresponding to the use.

Article 5. Uses permitted under conditions: for services and small capacity non-polluting productive activities there shall be obtained the environmental approval; in case of constructions and facilities within the protection area of national/county roads there shall be obtained the agreement of the National and County Roads Administration.

Article 6. Prohibited uses: provision of services and production activities that generate noise, dust and other pollutants and/or involving a significant traffic of raw materials and goods, in terms of quantity and frequency.

Article 7. Temporary building restrictions shall be applied in case of:
- land with archaeological remnants that requires re-allotment or restructuring through the Zonal Urban Plan;
- land affected by floods and high intensity subsidence, mild landslides (restrictions available until no risk is registered).

Article 8. Permanent building restrictions: shall be applied in case of land with high intensity geographical risks (landslides), land crossed by the Electricity Transmission Line (ETL), on a protection belt of certain width.

Chapter 3. Building regulations – location and compliance

Article 9. Residential buildings shall be oriented to cardinal directions in order to benefit from sun exposure and appropriate natural lighting.

Article 10. Location of buildings in relation to roads shall comply with the established protection area specific to each road category.

The street alignment of the new buildings shall follow the minimum required safety and protection area established on both sides of the national, county or local roads:
- 13 m from the road centreline in case of national roads;
- 12 m from the road centreline in case of county roads;
- within 10 m from the road centreline in case of local roads;

The setbacks of low/medium-height houses, from the street propriety line shall be of at least 5.00 m.

Article 11. Buildings shall preserve the traditional morphological spatial structure.

[3] This angle regulates the plan of street sun lightening, obtained by establishing the wall height on the border approved and by establishing the setback of the upper part of the building.
[4] Additional area.

Building location on the lot shall comply with the minimum mandatory setbacks from side and rear boundaries stated in the Civil Code (within 0.60 m in case of façades without gaps and within 1.90 m for hollow façades), only with the neighbours agreement.

If the side or back walls of the neighbouring buildings abut the side/rear lot line, the new building shall be attached to these walls.

If one lot is adjoining another lot on which a building shares its side wall on one of the side boundaries and on the other line it borders a building that has a certain setback from the side lot line, the new building shall abut the existing wall, whereas its setback from the opposite boundary will be equal to half of its height, but not less than 3 m.

If the lot is adjoining another lot with buildings not abutting any side boundaries of the lot, the minimum setbacks of the new building from both side lines shall be equal to half the height but not less than 3 m.

If there is a predefined alignment, buildings shall maintain their previous alignment to the street lot line and if not, their setback shall be of at least 3 m. The distance between buildings on the same lot shall be of 3 m.

In case of a proposed allotment, the minimum setbacks from boundaries shall be:

- side: 3 m for detached/semi-attached buildings, 0 m width for attached buildings;
- rear: 3 m for detached/semi-attached/attached buildings.

The minimum distances from the residential building permitted in order to maintain sanitary safety, are the following:

- septic tank/well - 30 m;
- animal houses (barns, stables)/dwelling - 10 m;
- household waste shelter/ dwelling - 10 m;
- parking/dwelling - 10 m;
- compost pit/ dwelling - 25 m;
- compost pit/water source - 50 m.

The location of buildings on the plot shall be in compliance with the minimum setbacks from side and rear boundary, which is h (height)/2 to eaves, but not less than 5 m. The location of buildings one from each other on the plot shall comply with the minimum obligatory distances between buildings, $d \geq h$.

Article 12. All new buildings will automatically be connected to all available public services (water, wastewater, electricity etc.). The connection to the main water supply system will be made only by the care and expense of the beneficiary/owner at the time of its completion.

Article 13. The connection of residential buildings to the main water supply system can be authorized only after establishing the individual or public sewage collection system for each dwelling unit. Before connecting to the sewage and wastewater public collection system, there shall be used sewage collection tanks, which shall be equipped for future network connection.

Article 14. All organic waste, as well as manure (if any) shall be stored on concrete or stone platforms for fermentation; if there are no animals on the premises, the composting organic waste shall be stored in landfills, and shall be also used as organic fertilizer. Any residential dwellings (including apartment buildings) shall be provided with organic waste platforms of different sizes:

- 5.00 m²/3 single family apartments;
- 2 m²/dwelling.

Article 15. Each residential dwelling owning livestock will have to have concrete platforms for fermentation of manure and storage tanks for liquid manure. The deadline for implementation shall be set by the Local Council.

Article 16. The size of the lots on which new residential buildings can be located shall be the following:

- minimum street frontage of:
  - ✓ 15 m width for detached buildings;
  - ✓ 12 m width for semi-attached buildings;
  - ✓ 8 m width for attached buildings;
  - ✓ 20 m width for multi-dwelling units GF+2F+A;
  - ✓ 25 m width for multi-dwelling units GF+3F+A;
- the depth must be greater than or at least equal with the width of the plot.

Minimum lot size by type of residential buildings:

- detached buildings (GF+1F+A): 300 m² (15 m × 20 m);
- semi-attached buildings (GF+1F+A): 250 m² (12m × 21m);
- attached buildings (GF+1F+A): 150 m² (8 m × 19 m);
- multi-dwelling units (GF+2F+A): 700 m² (20 m × 35 m);
- multi-dwelling units (GF+3F+A): 1000 m² (25 m × 40 m).

Article 17. Any intervention in protected built areas or archaeological sites shall be designated and analyzed by the Zonal Urban Plan or the Detailed Urban Plan, and subsequently shall be subject to the approval of Regional Committee no. 6 on Historical Monuments for issuing an archaeological clearance certificate.

Article 18. The building height shall be of maximum 3 storeys[5], the last of which is recommended to undergo loft conversion. All constructions will be provided with sloping roofs. The maximum height will be in accordance with the type of building:

[5] Areas with buildings with more than 3 storeys will be regulated by the provisions of the new General Urban Plan in accordance with the needs and requests of the future dwellings and the approved height.

- detached/semi-attached/attached buildings (GF+1F+A): maximum eaves height = 6 m;

- medium height multi-dwelling units (GF+2F+A): maximum eaves height = 10 m;

- medium height multi-dwelling units (GF+3F+A): maximum eaves height = 14 m.

Article 19. Neat appearance of the buildings will be required. It is prohibited the use of tin roof and corrugated asbestos cement roof sheets. Exterior finishes of the buildings facing the main street shall be specific to each village/town.

Article 20. Colour palette, façades and the empty space around residential buildings shall comply with the local architecture.

Article 21. Each plot shall be provided with a minimum 10.00 m² area of green space to the street line, with low height vegetation (flowers) and where not possible, all windows shall have flower boxes, which will contribute to the beautification of the public space. It is recommended that the existing fences shall be doubled by hedges.

The minimum areas reserved for green spaces on each lot, depending on the type of use, are as such:

- detached/semi-attached/attached buildings: 35 - 40% of the total surface (S) of the lot;

- medium height multi-dwelling units (GF+2F+A; GF+3F+A): 20% of the total surface (S) of the lot.

Article 22. All lots will have 1.50 m height transparent decorative fencing to the street. The materials and their composition will be in accordance with local specificities.

Article 23. Single-family buildings will be provided with roadway access for residents, waste collection and means of fire-fighting.

Alleys within the area, with a maximum 25 m length will have a minimum width of 3.50 m, whereas those longer than 25 m will be provided with extensions for overtaking and turning manoeuvres.

In case of easement roads with a length of up to 30 m, there will be provided a single 3.50 m wide lane. In case of easement roads with a length between 30 and 100 m, there will be provided two 7.00 m wide lanes, with sidewalk at least on one side and extension at the end for turning manoeuvres.

In the residential area separate access on the plot shall be provided:

- vehicle: minimum 3.00 m wide;

- pedestrian: at least 1.00 m wide.

The areas reserved for providing access (pedestrian and auto)/parking lots on the plot, by type of housing shall be of:

- 15 - 25% of the total plot area (A) for detached buildings;

- 15 - 25% of the total plot area (A) for semi-attached buildings;

- 35 m²/apartment for multi-dwelling units.

Article 24. The necessary parking lots for complementary facilities allowed in the area will be established under the provisions of the General Urban Planning Regulation. Parking lots needed for dwellings will be provided on plots:

- 1 public parking/5 dwellings + 20% for visitors;

- 1 parking/1 apartment + 20% for visitors (or garages min. 60%).

Article 25. The maximum SC % designated for residential plots shall be of:

- maximum 40% for housing within the central area of the lot;

- maximum 35% for housing within the exclusive low-height residential area (GF+1F+A);

- maximum 30% for housing within the residential area (GF+2F+A);

- maximum 20% for housing within the residential area (GF+3F+A);

If the current SC % > the maximum SC % allowed, any new constructions or horizontally extensions will be prohibited.

Article 26. The maximum value of FAR on the plots, according to their designation shall be:

- up to 1.20 for housing in the central area of the plots;

- up 1.00 for the exclusive residential area with low-height buildings GF+1F+A;

- up 1.20 for the exclusive residential area with medium-height buildings GF+2F+A, GF+3F+A.

Article 27. Currently located within the city area, the agricultural land belonging to dwellings, which is organically included in the residential area and complementary functions shall gradually receive other designation by the provisions of the Zonal Urban Plan/Detailed Urban Plan.

Article 28. The maximum capacity of animal houses shall be of up to five cattle and five pigs.

5. USING FUNCTIONAL ZONING AS TOOL FOR THE SUSTAINABLE DEVELOPMENT OF SETTLEMENTS

After the completion of functional zoning as part of the General Urban Plan, and after obtaining all necessary approvals, following its adoption at a public hearing of the Local Council, zoning regulations and ordinances become effective.

The implementation of functional zoning provisions is overseen by the Local Authority's Department of Urban Planning whose duties include:

- to verify whether the applications for construction are compliant with the functional zoning. It is the Urbanism Certificate[6] through which the

[6] According to art. 29 of Law 350/2001, ***Urbanism Certificate*** is the obligatory informing decision through which Local Authority acknowledges the legal economic and technical status of the buildings and the necessary regulations for the future investments, real estate

applicant is given all the technical parameters of compliance that must be taken into account when designing the building project;

- to transmit information to the interested stakeholders on town zoning;
- to explain zoning procedures to stakeholders;
- to provide recommendations to the Local Council Urban Planning Commission on the need to amend the zoning regulations, if the case.

Given that functional zoning is elaborated by experienced specialists and the exact compliance with the Local Urban Planning Regulation is achieved by the Local Authority through the Department of Urban Planning, this ultimately leads to harmonious urban development of settlements by:

- exploiting land both economically and reasonably within the city/village area;
- minimizing and limiting the influence of geographical risk factors on the settlement;
- balanced development, optimum sizing and distribution of functional areas within the city;
- limiting the extension of the city/village area on the outskirts, which has negative impact on agricultural land, by appropriately adjusting the urban densities in the functional areas of the current city/village area;
- preservation of urban ensembles of historical, architectural and heritage value;
- improving environmental and living conditions through proper sizing of buildings and constructions in accordance with the Local Urban Planning Regulation;
- preservation of the existent architectonic styles and imposing some styles for the new buildings, which should be consistent with the current general architectural pattern;
- provision of land for the development of streets, public roads, municipal infrastructure and services;
- optimal location of public services and facilities within the city/village area;
- regulation of auto and pedestrian traffic within the city/village area;
- provision and extension of green spaces, parks and squares in order to improve the quality of environment and increase the living standards;
- regulation of land market and appropriate land use;
- suitable localization of industrial activities within the city/village area and limitation of pollutants in residential areas;
- preserving land for future development needs.

Thus, functional zoning along with other planning instruments (e.g. development strategy), support the sustainable development of settlements.

transactions in accordance with the law. Hence, urbanism certificate provides information regarding the building regulation on a lot or the feasibility of a determined action.

6. CONCLUSION

Supporting the sustainable development of settlements cannot be achieved only declaratively and by the good intentions of decision makers. It also needs solid scientific instruments including functional zoning as part of the General Urban Plan. Through its cartographic content Local Urban Planning Regulation provides arguments and solutions to the representatives of the local authority for making the best decisions for the sustainable development of the settlement. The key issue in this approach is, however, the quality of zoning and proposals in the Local Urban Planning Regulation as well as the ability of decision-makers to follow and implement these provisions. To this, we can add the scientific skills of the zoning specialists in whose hands the destiny of a settlement is.

REFERENCES

[1] **Edward, Ng.** (2010), *Designing high density cities for social and environmental sustainability*, Cromwell Press Group, UK, pp. 4-5.

[2] **Ţarălungă, N.** (2004), *Forme de control privind folosirea terenului urban,* în Racoviceanu, S., Ţarălungă, N. (editori), *Management şi guvernare urbană*, UNDP Moldova, Chişinău.

[3] **Ţarălungă, N., Racoviceanu, S.** (2004), *Ghid de zonare urbană,* Institute for Housing and Urban Development Studies (IHS) Romania SRL, PNUD Moldova, Chişinău.

[4] *** (2002), Hotărâre nr. 525 din 27 iunie 1996 (*republicată) pentru aprobarea Regulamentului General de Urbanism publicat în Monitorul Oficial nr. 856 din 27 noiembrie 2002.

[5] *** (2003), *Conţinutul cadru al documentaţiilor de urbanism* în concordanţă cu prevederile Legii nr. 350/2001 privind amenajarea teritoriului şi urbanismul, Institutul Naţional de Cercetare-Dezvoltare pentru Urbanism şi Amenajarea Teritoriului URBANPROIECT – BUCUREŞT, Redactarea a 3-a.

[6] *** (2005), *Plan Urbanistic General (PUG) Municipiul Zalău, judeţul Sălaj, Romania.* Elaborat SC Experiment-Proiect SRL Cluj-Napoca.

[7] **Popşe, Corina, Roman, C., Irimuş, I., Puiu, V., Zotic, V.** (2010), *Coordonate majore ale dezvoltării spaţiale durabile a Municipiului Zalău*, în volumul Conferinţei Internaţionale *„Geografia în contextul dezvoltării contemporane”* cu tema *„Strategii de dezvoltare teritorială”*, 4-6 iunie 2009, Zalău, România, Presa Universitară Clujeană, Cluj-Napoca.

[8] **Cocean, P., Zotic, V., Puiu, V., Moldovan, C.** (2010), *Amenajarea teritoriului suburban al Municipiului Bistriţa,* Editura Presa Universitară Clujeană, Cluj-Napoca.