

# **Sustainable development of rural areas in Poland in the context of the 'urban sprawl' process**

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**Key words:** suburbanization, rural land use planning, sustainable development, land consolidation and division of real property.

## **SUMMARY**

Sustainable development of rural areas is a concept that pertains to many issues, including, without limitation, rational management of space which constitutes a non-renewable resource. Intensification of development of real property located in suburban areas results in negative changes in land use and is contrary to the idea of sustainable development of such areas. This phenomenon, referred to as "urban sprawl", causes many spatial conflicts. Due to attractive location, the vicinity of a city or town and good transport infrastructure, arable land of highest quality and agricultural suitability, protected under the Act on the Protection of Arable Lands and Forests, is often designated for development, as well as plots whose shape significantly hinders their optimal use. These conflicts can be avoided if the principles of sustainable land use are applied by rational spatial planning at the regional and local level.

Nevertheless, changes in land use effected pursuant to Polish planning documents, such as local development plans and local studies of conditions and directions of spatial planning, are not always in line with expectations. Local development plans are drafted only for certain areas and do not secure the actual implementation of their guidelines. Local studies of conditions and directions of spatial planning cover the entire territory of communes – but they are not acts of local law and they are not binding in the issuance of individual administrative decisions on outline planning and spatial development. The discussed documents include information on the assumed spatial development. On the other hand, the practice shows that these assumptions are not necessarily followed.

The objective of the study was the analysis of legal conditions of allocation of land for building development in rural areas with consideration of the procedure of exclusion of land from agricultural or forest production in Poland. Based on the example of the assessment of the existing state of selected problem areas in the Warsaw agglomeration, the need for analysis of environmental conditions and implementation of the land consolidation and division procedure was pointed out. Its implementation would considerably improve the conditions of sustainable development of the areas.

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## 1. INTRODUCTION

The dynamics of functional and spatial transformations of rural areas occurring in recent decades in Poland are disturbing (Raszeja 2005). A serious problem, discussed in the literature on the subject in recent years, is spontaneous expansion of urban development onto rural areas in close vicinity of cities, called suburbanisation (among others Bański 2006 and 2008, Degórska and Deręgowska 2008, Chmielewski 2005, Lorens 2005 and 2008, Majewska 2011, Raszeja 2005, Śleszyński 2012). The processes cover further spatial development of cities, transformations of urban structures spatially concentrated into loose complexes of settlement units, spatial-functional integration leading to merging of neighbouring agglomerations, and urbanisation of typically rural areas leading to the decline of the urban-rural areas dichotomy (Regulski 1985).

Uncontrolled suburbanisation is an inherent component of the development policy of suburban areas in Poland constituting a threat to their sustainable development. In sustainable development, social, economic, and environmental components should be harmonised. A disturbance of one of the systems causes a disturbance in the balance of the remaining ones (Smutek 2012a, Bielińska et al. 2014). Therefore, rational spatial management in suburban areas gains particular importance in reference to the essence of this doctrine.

Although transformations are a natural and unavoidable element of development, modern changes in suburban rural and agricultural space caused by housing development, industry, services, and technical infrastructure investments can negatively affect the value of agricultural and forest land (Bański 2008). Building development often covers arable land with the highest quality and usefulness, protected by legal provisions, and plots difficult to manage optimally due to their shape. One of the strategic objectives mentioned in the “National urban policy 2023” passed by the Council of Ministers on 20 October 2015 is counteracting negative phenomena of uncontrolled suburbanisation through striving towards deceleration of chaotic suburban building development and diligent protection of the natural environment, land resources, and landscape quality. For this purpose, changes in land use should occur with the consideration of spatial order. This is not favoured by the fact that in Poland, in a large majority of communes, the cover of land with local spatial development plans is incomplete.

Suburbanisation as a process that dominated modern problems of development of cities and their suburban zones is a complex phenomenon. It can be analysed in multiple aspects, among others:

- a) environmental (Degórska 2007):
  - devastation of the cultural landscape of rural areas,
  - loss of spatial order,

- allocation of originally not predisposed land for housing development,
  - defragmentation of local environmental connections,
  - moving green areas (for potential recreation) further from residential areas in city centres;
- b) economic (Smutek 2012a, 2012b):
- housing-investment development not related to agricultural economy in the vicinity of cities,
  - increase in demand for land,
  - revenues to commune budgets in the form of real estate tax (increase in investment in the area of communes) and personal income tax,
  - expenditures related to among others costs of technical infrastructure, and particularly transport and water supply and sewage infrastructure,
  - fallowing of a considerable amount of land while waiting for its sale;
- c) socio-demographic (Lisowski, Grochowski 2009; Flaga 2010):
- development of non-agricultural forms of land management,
  - increase in population density – inflow of new residents from the city,
  - decline of bonds between neighbours, conflicts between the local and inflowing community, social segregation of residents,
  - decline of the character of rural areas in favour of urban landscape and so-called “urban lifestyle”.

## 2. STUDY OBJECTIVE, MATERIALS, AND METHODS

The study objective was the analysis of legal conditions of allocation of land for building development in rural areas with the consideration of the procedure of exclusion of land from agricultural or forest production in Poland. For the selected problem areas in the Warsaw agglomeration, data concerning the quality of soils (i.e. soil-agricultural and classification maps at a scale of 1: 5 000), land and building register, and orthophotomaps (via [geoportal.gov.pl](http://geoportal.gov.pl)) were used. For the purposes of the assessment of usefulness of land for building development, the procedure of their exclusion from production was considered, resulting from the *act of 3 february 1995 on the protection of arable and forest land (consolidated text, Journal of Laws of 2017 item 1161)*, as well as the ownership structure and shape of registered plots. Based on the example of the evaluation of the existing state, the need for analysis of environmental conditions and implementation of the land consolidation and division procedure was pointed out. It's implementation would considerably improve the conditions of sustainable development of the areas.

## 3. SUBURBANISATION IN POLAND AND AROUND WARSAW

Suburbanisation is currently one of the main problems of development of large European cities and their peripheral zones, both in so-called “old Europe” (Phelps 2017) and in the majority of large cities in the Post-communist countries (Hirt 2007, Tanaś and Trojanek 2014,

Mihai et al. 2015). Research conducted by Couch et al. (2007) showed that countries preferring private ownership of apartments and those in the period of transformations, among others Poland, are the most susceptible to suburbanisation processes.

### 3.1. Legal conditions

Considerable changes in the spatial management system in Poland were introduced on 11 July 2003, i.e. on the day of coming into life of the *Act of 27 March 2003 on spatial planning and spatial management (consolidated text, Journal of Laws of 2017, item 1073, 1566)*.

Pursuant to provisions of the act, spatial policy in Poland is particularly implemented on the commune level. The basic instrument determining spatial policy in a commune is the study of the conditions and directions of spatial management of the commune. Tasks in the scope of the policy are implemented based on local spatial development plans, and in the case of their lack by means of the decision on the conditions of building development and land management. Only the local spatial development plan actually implements the spatial policy of the commune – it is an act of local law specifying the purpose and conditions of spatial management of land pursuant to arrangements included in the study on the conditions and directions of spatial development of the commune and to the spatial policy with supralocal character (country, regional). The study does not constitute an act of local law. Therefore, communes can deviate from its provisions in the issuance of planning decisions such as the decision on the conditions of building development and decision on the arrangement of the location of a public purpose investment. This suggests weakness of the Polish spatial planning system.

The act of 2003 discussed the role and importance of studies on the conditions and directions of spatial management as the obligatory document determining the spatial policy of a given commune. The studies, however, are not acts of commonly binding law. They constitute only an internal act binding for the head of commune, mayor, city president, and council of the commune in preparing and passing local plan. They have no effect on the issuance of decisions on the conditions of building development and land management.

The rule of facultative passing of local plans, expressed in the fact that they can, but do not have to be passed, strengthened lack of such studies for considerable areas of communes for years. The cover of the country with local plans is insufficient and increases at a slow rate – it is currently at a level of 30.2% (Bank of Local Data of the Central Statistical Office, state as at the end of 2016). Local plans are often fragmented, and are only prepared for the purposes of particular investments.

Therefore, the role of the decision on the conditions of building development and land management considerably increased. In the case of lack of the local plan, it constitutes the basic instrument of spatial management by the head of the commune, mayor, or city president in reference to examining relevant applications by investors. This results in building development in areas not covered by plans, urbanisation chaos, dispersal of building development, and caricatural – considering lack of land consolidations – housing development with irrational parameters of roads and plots (roads with a width of 3-4 m in delimitation lines, shallow plots with a length of less than 115 m and small width, forcing small distances between buildings – Fig. 1).

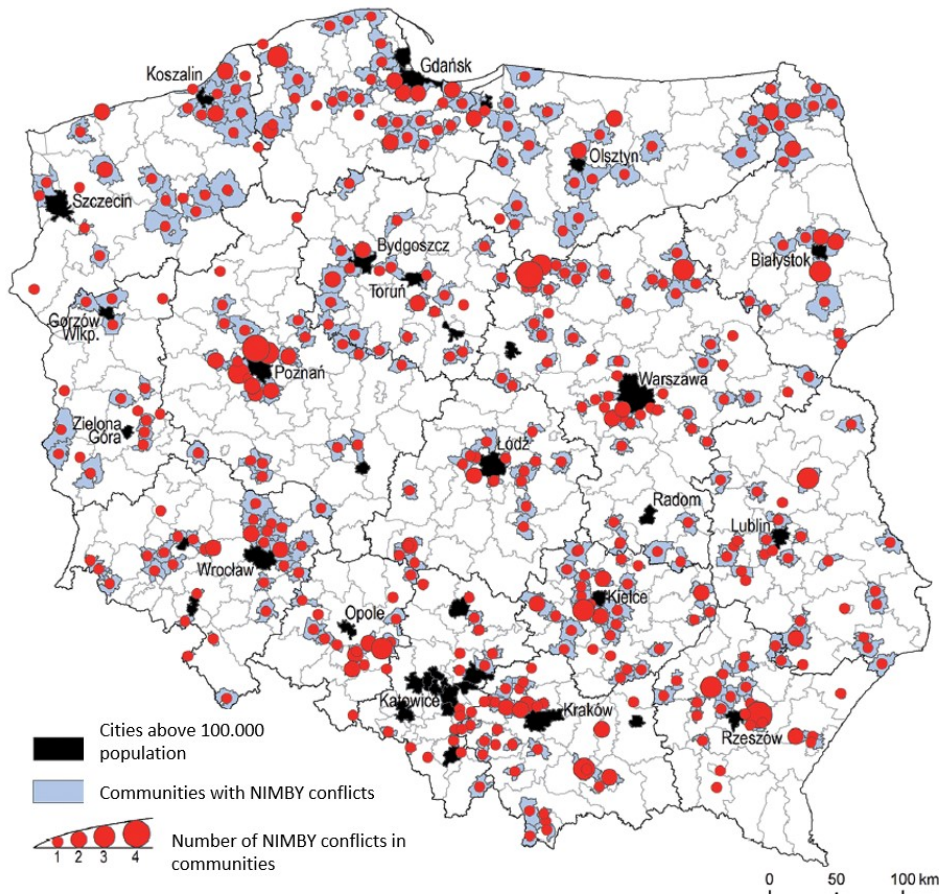


**Fig. 1. City of Brwinów in the vicinity of Warsaw, new urbanised areas in the territory of the former Pszczelin village (widths of registered plots indicated in white, width of access roads – in yellow)**

*Source: own elaboration based on <http://pruszkowski.e-mapa.net/>.*

Possibilities of investing in areas without local plans result in the constantly increasing number of socio-spatial conflicts of the NIMBY type (“not in my backyard”), concerning various subjects and with various spatial ranges (Fig. 2).





**Fig. 2. Spatial image of occurrence of social conflicts in Poland (excluding large and medium-sized cities) resulting from a search of press archives (regional and local press) from the period from January 2007 to March 2014**

Source: Bednarek-Szczepańska and Dmochowska-Dudek 2016.

The change of the political-economic system initiated in 1989, development of the private economic sector, and introduction of the market economy in Poland intensified changes in the allocation of arable land for building purposes. Increased demand for investment land and lower prices of land in suburban communes resulted in mass transformations of arable land – approximately 10,000 thousand ha of arable land annually from 1990 (Wasilewski and Krukowski 2004), and parcellation into building plots. In spite of attempts to introduce order in planning processes through planning acts, no legal remedies are currently available in Poland that would allow for management of uncontrolled allocation of arable land for building development, with the exception of allocation of the best soils for non-agricultural purposes.

Pursuant to the currently binding *Act of 3 February 1995 on the protection of arable and forest land*, the protection of arable and forest land in Poland particularly involves limiting their allocation for non-agricultural or non-forest purposes, understood as the establishment of use of arable land other than agricultural or forest purposes, and use of forest land other than forest purposes. The act specifies what land should be protected, considering among others its

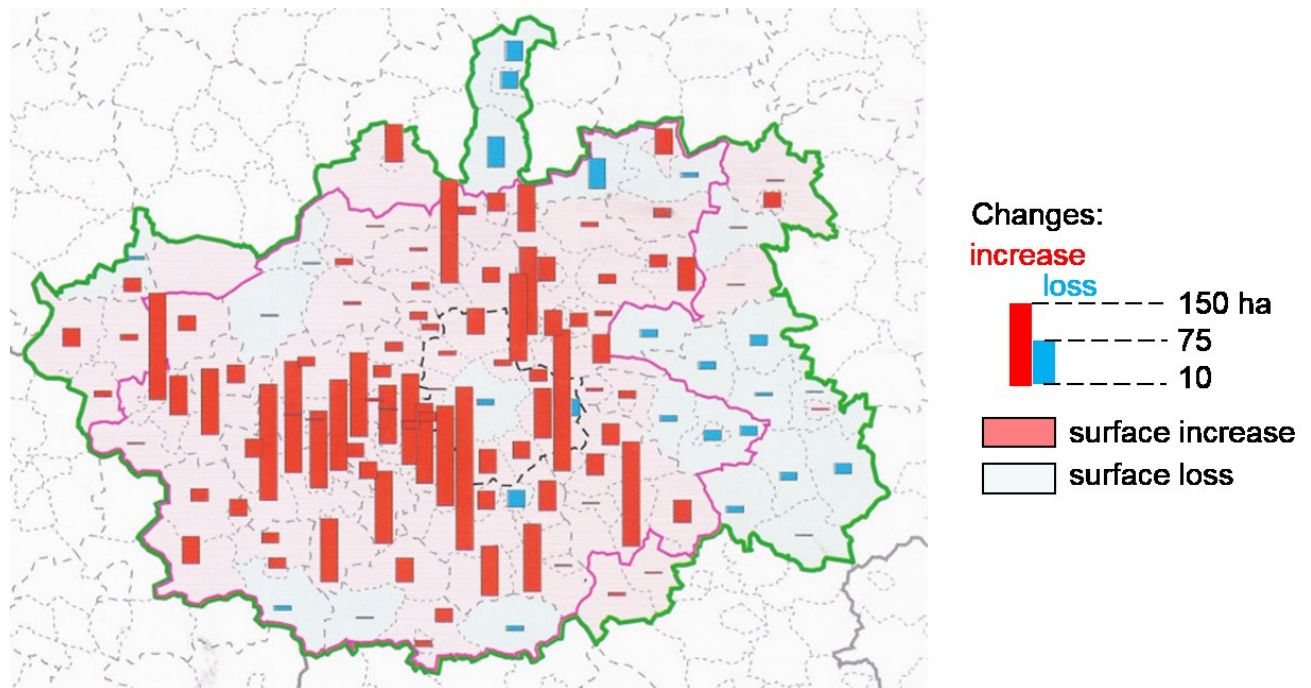
bonitation class and type of soil. Allocation of arable and forest land for non-agricultural and non-forest purposes occurs in the local spatial development plan, after obtaining the consent of the relevant authority, for arable land constituting agricultural land of classes I-III and forest land. The provisions are not applied in the case of arable land located within the administrative boundaries of cities. This means that a change of purpose of arable land constituting land of classes I-III to non-agricultural purposes does not require passing of the local spatial development plan by the commune, and does not require the consent of the relevant authority. It is necessary, however, to obtain an administrative decision allowing for excluding land from agricultural production and incurring fees related to such exclusion.

Obtaining the decision allowing for the exclusion of land from agricultural or forest production is also required in the case of:

- arable land developed from soils of mineral and organic origin, included to classes: I, II, III, IIIa, IIIb;
- arable land of classes: IV, IVa, IVb, V, and VI developed from soils of organic origin;
- land defined in the act as arable land, and forest land allocated to non-agricultural and non-forest purposes.

### **3.2. Urbanisation of rural areas in the Warsaw agglomeration**

In the common opinion of specialists (Ministry of Infrastructure and Construction 2016), replacing local plans with administrative decisions leads to the destruction of Polish space at the local scale, because it enables building development practically in any place. The process intensifies around large cities. It is particularly evident in the Warsaw metropolitan area (Fig. 3).



**Fig. 3. Changes in the surface area of residential areas in the Warsaw metropolitan area in the years 1995-2004**

*Source: own elaboration based on Degórska and Deręgowska 2008.*

Exceptionally intensive urbanisation of rural areas occurs in the area of the Warsaw metropolis. This is confirmed by research conducted in the years 1995-2004 by Degórska and Deręgowska (2008). According to the research, the greatest changes in arable land, of more than 90% of surface area, occurred in the area located 40-50 km from Warsaw (Fig. 3). In communes located to the south and west, they amounted to even approximately 300 ha. Śleszyński (2012) evidenced that in the binding local plans in external zones of Warsaw (intensive and extensive), changes in the purpose of arable land to other purposes amounted to 49.4 thousand ha, which constitutes 28.8% of the surface area of the communes and 40% of all arable land. According to Bielska and Maciejewska (2018), in the period 2005-2015 in the Mazowieckie voivodship, a total of 3 142 ha of land was excluded from agricultural and forest production. The value corresponds to approximately 25% of the area of an average commune. During that time, throughout Poland, a total of 4 4633 ha of land was excluded from agricultural production, whereas the area of an average commune amounts to approximately 12 000 ha.

A higher contribution of changes of the status of land from agricultural in the surface area of communes was characteristic of self-governments at higher distances from Warsaw. In the conditions of the current level of changes in the status of land from agricultural in the suburban zone of Warsaw, and relatively low value of population density of 10 persons per 1 ha, additional reserved for building development are obtained amounting to 0.5 million people. It is an improbable scale of residential suburbanisation, at least in the context of the current demographic trends and time horizon of the validity of local plans. Simultaneously in the



binding local plans, only 2288 ha are allocated for single-family housing development in the same areas. Therefore, this glaring disproportion in the form of more than 20-fold difference between provisions on single-family housing development and changes in the purpose of land to agricultural purpose results from the fact that self-governments want to rather adapt new land for building development than rearrange the existing situation and increase the density of the existing building development.

New forms of spatial management of rural areas and the accompanying emission of pollutants (water, land, air) result in a decrease in the quality of life of residents of agglomerations. Service centres with commercial, logistic, and even entertainment functions were moved out from central zones. The phenomenon generates irrational traffic of passenger cars in direction urban-rural areas on all transport routes (especially exit roads from the city), and is a considerable hindrance for users of urban space (Majewska, 2011).

Suburbanisation in the case of Warsaw shows features of desurbanisation (Chmielewski 2005, Majewska 2011). As a result of desurbanisation, the structure of internal areas of cities becomes similar to suburbs through random parcellation of space and reduction of population density. Suburban areas create amorphous layouts of building development difficult to support with technical infrastructure, including service infrastructure. This way a new “dispersed city” develops where *the image of the traditional city that we still consider a kind of identification sign, spatial expression of urban identity, declines* (Gzell 2015). The processes deviate from the rules of sustainable development and destroy spatial order in the suburban zone of the capital (Chmielewski, 2005).

### **3.3. Environmental and structural conditions having an effect on the development of building development in the suburban zone of Warsaw**

The primary conditions hindering obtaining land for residential purposes in the Warsaw agglomeration include:

1. unfavourable structure and shape of plots, requiring restructuring and adjustment of the shape and surface area of the plots to new functions with the application of the land consolidation and division procedure.
2. occurrence of forest or arable land developed from high quality organic or mineral soils, subject to the act on the protection of arable and forest land.

The authors’ detailed research in the scope of the structure and shape of plots shows that:

1. The plots are characterised by different widths. They are mainly very long plots, even up to 1 km. For the purpose of preparation for building development, wider plots under current agricultural use are divided into smaller registered plots. Roads are unregulated, with different widths along different fragments. They are dead ends without a turning zone at the end.
2. The unfavourable structure and shape of the plots causes problems with the accessibility of the public road and construction of technical infrastructure (Fig. 4).



**Fig. 4. Example of building plots without access to the public road in the Kikoły village, Pomiechówek commune**

*Source: own elaboration based on Geoportal 2.*

3. Single-family houses coexist with farm buildings. Buildings are also constructed in the second, and even further lines of buildings, and access roads running along ownership divisions are constructed for the purposes of new buildings development (Fig. 5).



**Fig. 5. Example single-family housing development in the second line of buildings together with the access road in the Kikoły village, Pomiechówek commune.**

*Source: own elaboration based on Geoportal 2.*

4. Many “gaps” appear in building development. Very narrow plots remain not adjusted to building development (Fig. 6).



**Fig. 6. Example of “gaps” in building development resulting from the failure to adjust plots to building development in the Kikoły village, Pomiechówek commune**

*Source: own elaboration based on Geoportal 2.*

5. A serious problem occurs in the scope of obtaining land for investment purposes due to the progressing suburbanisation process and unfavourable structure and shape of plots that needs restructuring and adjustment of the shape and surface area of the plots to new functions (Bielska and Maciejewska 2018):
  - Ownership structure and shape of plots (narrow, below 20 m in width, excessively elongated) effectively inhibiting rational investment management even if the investor purchases several neighbouring plots (Fig. 7).
  - Selective application of land division or consolidation and division allows for rational management of only plots covered by the procedure, but spatial order is not obtained.



**Fig. 7. Example service-production building development on several registered plots in the Częstków Polski village, Czosnów commune**  
*Source: own elaboration based on Geoportal 2.*

Considering the occurrence of arable or forest land developed from high quality organic or mineral soils, it should be emphasised that soils with the highest production potential (covered with protection against exclusion from production based on the act on the protection of arable and forest land) occupy only approximately 26% of the total surface area of arable land in Poland (Bielska et al. 2015). Therefore, they are very scarce, and their allocation for purposes other than agricultural should be restricted to the necessary minimum. Considering e.g. the urban-rural Ożarów Mazowiecki commune bordering on the Warsaw metropolis to the east, it should be emphasised that it is very exceptional. On the one hand, the direct vicinity and very convenient transport connection with Warsaw causes immense pressure of building development. On the other hand, very good soils of II and III bonitation class constitute almost 100% of the arable land. In the occurring soil conditions and their protection, it is very important to consider them in planning on not only the local, but also regional level. Regarding the determination of directions of residential housing development around Warsaw – building development should not develop westwards, but eastwards, where soils are weaker. It is sufficient to provide the area with relevant technical infrastructure, including roads.

#### **4. LAND CONSOLIDATION AND DIVISION PROCEDURE AS A TOOL OF SUSTAINABLE DEVELOPMENT OF SUBURBAN AREAS**

As a result of the occurring suburbanisation processes around Warsaw, chaotic development of dispersed suburban building development is observed and lack of diligence in the protection the natural environment, land resources, and quality of landscape. A procedure



which can considerably facilitate the process of spatial planning in communes where residential function becomes more important, as well as order sometimes flawed structure of plots is land consolidation and division. The process must implement the assumptions of the local plan, which guarantees rational and orderly spatial development in accordance with the rules of spatial order.

The land consolidation and division procedure in Poland is closely related to the *Act of 27 March 2003 on spatial planning and spatial management*. The possibility of conducting the procedure depends on the binding of the local spatial development plan in a given area. Land consolidation and division permits obtaining the most beneficial configuration of consolidated land from the point of view of their most rational use for a purpose resulting from the content of the binding local plan. Moreover, it ensures the provision of access to public roads and provision of technical infrastructure. Due to the above, consolidation and division should be treated as a stage following the passing of the local plan, by means of fluid and planned transition from agricultural land use to its use for residential purposes (Klat-Górska and Klat-Wertelecka 2015). The stage is transparent and properly formalised in the *Act of 21 August 1997 on real estate management (consolidated text, Journal of Laws of 2018 item 121, 50, 650)* and *Regulation of the Council of Ministers of 4 May 2005 on land consolidation and division (Journal of Laws of 2005 No. 86 item 736)*.

## 5. CONCLUSIONS

The analyses showed that the intensive development of suburbanisation in the suburban zone of Warsaw, resulting from the effect of the lack of effective planning legal rigours in Poland, causes increasing spatial chaos, both in the scope of forms of building development and its location, as well as technical parameters of areas designated for building development. Construction land consumes extensive open agricultural and forest areas, also those with high soil quality (subject to protection against exclusion from production based on the act on the protection of arable and forest land), with no regard for the fact that the space constitutes limited resources that should be available also to future generations.

The spatial development of suburbs is an inevitable process resulting from the necessity to satisfy basic needs of modern man. It should be remembered, however, to reconcile urbanisation processes with respect for the rules of sustainable development. A procedure that can considerably facilitate the process of spatial planning in communes in which residential function gains importance, and order unplanned and land faulty parcellation is land consolidation and division. The process must implement the assumptions of the local plan, which guarantees rational and harmonised spatial development, and minimises the related spatial and environmental conflicts.

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