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Chapter 16

Landscape and Spatial Management: Changes, Principles and Directions of Measures



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Abstract The chapter aims to identify and assess the principles and determinants shaping the landscape and spatial order in Poland over the last 30 years. It is divided into two parts: theoretical and empirical. The first presents issues concerning the natural and cultural landscape as well as spatial order, whereas the second illustrates the spatial changes in Polish cities and villages that have taken place over 30 years since the political transformation. These changes are illustrated by an analysis of the land use structure regionally and also by structural, physiognomic and functional research results locally (as a case study of selected settlement units). The work concludes with a set of guidelines which are at the same time recommendations for proper landscape design and the preservation of spatial order. The summing-up includes some final remarks on the course, results and consequences of the landscape changes that have taken place, which can affect the human environment and in turn reflect spatial order.

Keywords Landscape · Spatial order · Political transformation · Land use · Poland

16.1 Introduction

Today in Poland, there is a growing scientific interest in landscapes. This is supported by an increasingly greater number of publications and conferences and the need for special studies on planning and landscape management (e.g. Niedźwiecka-Filipiak 2009; Mizgajski 2008; Raszeja et al. 2010; Myga-Piątek 2012). There is a strong need to scrutinise the Polish space developed after the political transformation which brought about landscape changes that are complicated and difficult to evaluate. These changes result, inter alia, from the ‘democratisation of space’ in the continuously liberating spatial planning regulations (Myga-Piątek 2012). The contemporary geographic information systems give great research and application opportunities to

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study landscape. They help create visualisations of occurring transformations and are used for interdisciplinary analyses to determine trends in changes of various scales, thus contributing to the development of effective methods for protecting the surrounding space.

What is considered in the discussion is a physiognomic trend in landscape research which highlights the issues of spatial composition, fostering the aesthetic and natural features as well as cultural components of a landscape. Additionally, this chapter will also assess spatial order. This is space organisation which brings harmonious unity and takes into account determinants as well as functional, socio-economic, environmental, cultural, compositional and aesthetic requirements in organised relations (Chmielewski 2012).

The chapter aims to identify and assess the principles and determinants shaping the landscape and spatial order in Poland over the last 30 years. The principles are understood here as the administrative and legal bases for designing landscape and order specified in acts and executive acts and included in planning and strategic documentation at national, regional and local levels. Determinants, on the other hand, are the circumstances (conditions, factors, mechanisms) underlying the state of the environment, where the inhabitants of Polish cities and rural areas live, expressed in landscape and spatial order.

16.2 Landscape versus Spatial Order: A Theoretical Approach

Landscape is a broad, complicated spatial system, covering three hierarchical, mutually interrelated patterns: abiotic, biotic and anthropogenic. The first is composed of geocomplexes; the second is arranged in populations and biocenoses remaining closely linked to their habitats which are the basis for the formation of ecosystems and phytocenoses. The third embraces landscape elements formed or transformed by people. This system transforms matter and energy and, in a multisensual way, affects the living organisms that are the elements of this system. A visual effect of the coexistence of all the elements of this system in a given area is the unique physiognomy of a landscape (Chmielewski 2012). Spatial order, on the other hand, is understood *sensu stricto* as the mutualism of: urban planning and architectural order (Zipser 2006) (related to the compositional compactness of the building structure, clarity and logic in the distribution of buildings, their shape, size, situation of greenery and services), functional order (related to functional values, the provision of technical and social infrastructure, access to recreational areas, services and business activity), aesthetic order (related to the beauty of a place, its attractiveness and harmony), psychosocial order (based on social relations, identity and belonging) and ecological-environmental order (based on the assets of the natural environment, on healthy physiochemical properties of the place where people live). Spatial order is associated with good organisation, balance, stability, cohesion, harmony and beauty

(Zawadzka 2017). This is such arrangement of space which forms harmonious unity and allows for all the determinants as well as functional, socio-economic, environmental, cultural and compositional and aesthetic requirements in organised relations (*Act of 2003 on planning and spatial development*).

16.2.1 Landscape as a Spatial Pattern of the Social-ecological System

The increasing conviction of scientific circles and governments about the need to take care of the environment not only through the active or passive protection of its individual components, but mainly by managing the environment as a whole, has resulted in an increased interest in the landscape in recent years. Effective environment protection requires considering not only the bilateral interactions between a given factor and an investigated object, but also reciprocal interactions between factors. The landscape, which is the effect of interactions between components of the environment and forms a physiognomic layer of ecosystems, enables such activities (Mizgajski 2008). Such a statement follows, inter alia, from the results of ecological research which led to the formulation of one of the paradigms of landscape ecology holding that the structure of a landscape determines its functions (Forman and Godron 1986), and to the description of the importance of various typical features of the composition and configuration of a landscape for its functioning (McGarigal et al. 2000).

The Lake District Declaration of 1988 contributed to a great extent to the recognition of the importance of landscape protection by European governments, international agencies, including the International Union for Conservation of Nature (IUCN) and NGOs. In 1992, the World Heritage Convention discussed the significance of cultural landscape protection in preserving traditional values, which resulted in the inclusion of this category in the UNESCO World Heritage List. The European Landscape Convention signed by Poland in 2001 and ratified in 2006¹ obliges public authorities to adopt the policy and implement measures at local, regional, national and international levels for protecting, managing and planning landscapes across Europe.

16.2.1.1 Natural Landscape

A natural landscape is understood in the literature in two ways. On the one hand, this is a landscape composed only of natural elements of the environment such as air, rocks, soil, water, flora and fauna. On the other, a natural landscape is distinguished on the basis of environmental features. Both approaches do not allow for artificial surfaces, but areas transformed by people are usually taken into account. Most scientists agree

¹ Journal of Laws of 2006, No. 14, item 98.

that a natural landscape is not an original landscape and embraces both natural phenomena and areas under agricultural, forest or water management. Troll (1950, after: Richling and Solon 2011) differentiates between a natural landscape (natürliche Landschaft), distinguished on the basis of natural features, and the landscape of nature (Naturlandschaft), referring to areas unchanged by people. In Poland, the first comprehensive division of a landscape was presented by Kondracki (1960). The typology was based on land relief which is strongly linked to the geological structure and affects all other landscape elements. The existing division prepared by Richling (1992) is a modification of earlier classifications. It is based on three elements: soil, water and potential plants in four types of landscape: lowlands, uplands, mountains (low, medium–high and high) as well as valleys (also depressions).

16.2.1.2 Cultural Landscape

A cultural landscape is a landscape transformed by humans as a result of civilisation development. It is an evolutionary consequence of natural landscapes (environmental)—different in terms of zones and levels—that existed in the prevailing territories of the world until the Neolithic era. A crucial role in the process of landscape transformations is played by the combination of environmental, socio-economic, political and civilisational (technological) factors, and the position and impact of which (hierarchy) have changed over time (Myga-Piątek 2012).

What also appears in the source literature is the notion of an anthropogenic landscape treated as a wide group of heterogenic landscapes embracing all its forms transformed by people. These are landscapes modified in order to fulfil a specific economic function, i.e. cultural landscapes (e.g. agricultural, settlement, mining) and degraded landscapes, so-called anthropic, formed as a result of phenomena that are particularly harmful to the natural environment, also as an effect of unforeseen and unintended processes initiated by people. Cultural landscapes have environmental elements (e.g. forests, parks, meadows) as well as anthropogenic ones, which makes them subject to natural regularities. If a cultural landscape system is well-balanced, it may be regarded as a sustainable cultural landscape (Solon 2004).

16.2.2 *Spatial and Social Determinants of Spatial Order*

In today's analysis of the spatial development and structure of cities and rural areas, attention is paid particularly to the interaction between spatial and social determinants. These determinants are in a coherent and organised relationship. What is important is the aesthetic appearance of a given space, a transparent (memorable and understandable) as well as a reliable and effective pattern, which should not consist of destructive elements. The interdependence between urban life patterns and the logic of an urban form, between a spatial form and a social process is significant. This harmonisation of spatial structures and urban life forms as well as the balance

of opinions (discussing and coordinating interests) between various entities acting in the urbanised space is the key element of spatial order (Zuziak 2008). At present, in order to learn about the determinants of the spatial order of urbanised and rural areas, the following should be taken into account: (1) rules of the investment game, which is the basis for the development of cultural and economic values affecting the life of an individual and society, (2) relations and interactions between the settlement centre and its surroundings, (3) properties of the space, resulting from needs, preferences and requirements of the users of this space, (4) principles of co-governance, rules of the game of the game participants, obligations and powers of decision-makers, (5) possibilities of adjusting material forms of space to changing needs and vital functions and (6) urban metabolism, i.e. the phases of tissue (morphology) degradation and methods for its revival. The knowledge of these rules, relations, properties, principles, possibilities and changes allows assessing the space in aesthetic, psychological (visual perception), functional, useful and constructive (the pattern stability) terms. Then, the vitality of the spatial structure can be evaluated, as well as its form and matter (size, shape, mass, mobility and cohesion), as well as harmony understood as the concept of spatial order. It is likely, however, that in the foreseeable future, progress in the democratisation of public life, the liberalisation of economic life and greater ecological awareness will require researchers to be much more skilful than they have been so far in associating various development strategies affecting the quality of the urbanised space and rural areas.

16.3 Principles of Landscape and Spatial Order Design in the Provisions of Law and Strategic Documents of 1990–2020

In Poland, landscape and spatial-order design is subjected to numerous legal regulations along with arrangements resulting from strategic documents discussed nationally, regionally and locally.

In the 1990s, the Act of 7 July 1994 on spatial development (Journal of Laws of 1999, No. 15, item 139 as amended) came into effect, which protected property rights, introduced negotiations in planning processes and empowered citizens. The pursuit of freedom meant losing a sense of spatial order and sustainable development (Kolipiński 2000; Kowalewski and Puzyna 2005). Liberty without barriers and urban standards became a process that devastated the Polish urbanised space. Therefore, there was a lot of talk about the need to change the provisions of this act. Instead of taking over the proven planning and spatial development systems functioning in democratic countries with market economies and adopting them to low urbanisation, poor development and the country's specific problems, Poland tried to build spatial management 'from scratch' with detrimental effects for development processes, distancing it from the state and spatial development in the European Union (Billert 2006). The Act of 1994 abolished the existing urban provisions that

determined the creation or maintenance of spatial order and sustainable development in management processes (Jędraszko 2004). This change was, on the one hand, an expression of discouragement by rigid design rules existing in the socialist system and, on the other, resulted from the conviction that their abandonment will make designers to create spatial order according to the principles taught during academic studies. This conviction proved wrong, because the norms were replaced by even more rigid requirements, alien to spatial order, that investors and designers had to submit to.

The existing legal regulations, specifying the principles of designing the urbanised space (i.e. the Act of 27 March 2003 on planning and spatial development—Journal of Laws of 2003, No. 80, item 717 as amended) do not contain tools for the implementation of a planning process. There are no arrangements concerning the preparation of a place for the development planned, including the consolidation and secondary division of private areas, the right of pre-emption by communes, lease of property and preparation of communal land resources. The rules are not defined, as are the procedures for applying public-private partnerships. Instruments for financing investments in communes (taxes, loans, subsidiaries granted by communes) are not specified. What is also lacking is urban supervision at each stage of the investment process. Polish local authorities are not obliged to improve land designated for development (activated by the planning procedure). Commune councils do not specify the amount of compensation fees, cooperation principles of the private sector or ecological compensations from investors for environment and natural protection. The Act of 2003 should contain, but does not, rules for land valuation and procedures related to it. This is particularly important for unavoidable changes in the amount of cadastral tax.

The Landscape Act (Journal of Laws 2015, item 774) has started to play a significant role in Polish regulations, aiming at adapting tools for effective landscape protection. This act introduced landscape audits which deal with the so-called common identification of landscapes and assess the landscape value. The landscape audit determines also threats to the preservation of landscape values as well as the recommendations on and conclusions concerning their development and protection. Moreover, the act introduced, *inter alia*, changes in the regulation on the creation and functioning of landscape parks and the areas of a protected landscape.

Urban and rural space designing in Poland is not easy, because legal regulations are adopted by various ministries, therefore, they are: incoherent, non-integrated, non-operational, non-normative, non-marketing and not adapted to property rights protection.

Designing spatial order and landscapes results from the arrangement of many strategic documents. Nationally speaking, these principles are formulated by ten strategies which, besides general rules on the spatial, social and economic development of the country, also indirectly specify how to ensure spatial order and principles of landscape design. They stipulate, e.g. the construction of a system for monitoring spatial processes, an increase in the total area of the country covered by spatial development plans, and the introduction of a relevant system of regulations and decisions enabling, *inter alia*, suburbanisation processes to be controlled or the application of

functional planning as well as greater emphasis on strengthening public participation in spatial planning. They indicate the need for transformation in the building industry (without excessive dispersion of buildings, maintaining consistency between a project and a local socio-cultural and natural context). They mention the necessity for the energy and material efficiency of architectural-construction projects and also the application of sustainable architecture, which fits in with a local cultural and natural landscape. They stipulate the principles of landscape design and conditions for spatial order by creating a consistent network of transport infrastructure, safety, reliability and constraints on the negative influence of transport on the environment, and the preparation of a rational model for financing infrastructural investments. The directions defined in these strategies greatly affect landscape and spatial-order design.

It should also be mentioned that regionally the provisions regarding the formation of a landscape are specified by the Voivodeship Development Strategy (for a relevant Voivodeship) and the Voivodeship Spatial Development Plan (for a relevant Voivodeship). Locally, the principles of spatial-order design are included in the studies on determinants and directions of spatial development of communes, in local development plans and decisions on building conditions.

Although the documents mentioned specify the arrangements related to the maintenance of spatial order, they do not complement one another. The arrangements cannot be completed with a shortage of financial resources or weak citizens' support. The documents are not consistent and their scope often overlaps.

16.4 Changes in the Land Use Structure During the 30 years of the Transformation: Factors and Effects

16.4.1 Land Use as an Indicator Describing the Landscape

Land use is the distinctive feature of a landscape, which is most fully represented on maps. At the same time, it can be easily characterised by quantitative indicators. In turn, it enables the formalised comparison of various types of landscapes and research on the dynamics of their changes. According to Jaeger (2000), in addition to documenting landscape development, quantitative evaluations and analyses of the spatial landscape structure are essential due to, inter alia, the consistent and clear presentation of a landscape model, possible comparison to other regions and the formulation and testing of hypotheses on the presence of size thresholds, beyond which the type of spatial structure and landscape factors change. At the same time, one cannot fail to notice that landscape distinctive features, through the land use structure, are associated with the impoverishment of information about it, concerning, e.g. differences in topography and development forms.

In Poland, one of the data sources on land use is a cadastre. This is a database mainly for fiscal purposes, but is often used for science (e.g. Petek and Gabrovec 2002; Bičik et al. 2001; Magnin et al. 1995; Krausmann 2001). Its unquestionable advantage is its time continuity and the fact that it covers the whole country. Uniform data have been functioning in Poland since 1947 (Łowicki 2008a). The authors used the cadastre of 2002 and 2018 (regional level) as well as of 1989, 1995, 2000, 2005, 2012 and 2018 (subregional level) to analyse temporal and spatial variation in landscape changes at regional and subregional scales. The landscape transformation index (LTI) was applied as a change indicator (Łowicki 2008b). In the first stage, the categories of land use distinguished on the basis of various legal acts were unified. Thus, eight types and 16 subtypes of land use were obtained, which were subsequently assigned to either an extensive or intensive group of the use of ecosystems. The first group included biologically active surfaces, i.e. those elements of a landscape in which natural processes dominate. They comprise farmland (arable land, orchards, meadows and pastures), forestland (forests, wooded and bushy land), waters (standing, flowing and ditches) as well as miscellaneous land and wasteland. The second group consists of categories with a large share of sealed surfaces and those landscape elements in which technical processes prevail, i.e. mining land, transport areas (roads, railroads and others) and settlement ones (developed, undeveloped and greenery). Based on the total area of each group, the landscape transformation index has been formed: $\mu = Et/Ep$, where μ —landscape transformation index, Et —areas dominated by technical processes, Ep —areas dominated by natural processes. At regional level, the analysis covered 16 Voivodeships, whereas in the case of the subregional level, neighbouring communes which changed their areas were merged into one administrative unit. Thus, 212 research fields were obtained from 226 communes.

16.4.2 Changes at Regional Levels

The Landscape Transformation Index grew on average by 0.9 in 2002–2018, but its rate was 3.5 times faster in 2010–2018 than in 2002–2010. The changes were not evenly distributed among regions. In two western regions, in Lubuskie and Zachodniopomorskie Voivodeships, extensive land use processes dominated intensive ones (Fig. 16.1). However, it only concerned the first period between 2002 and 2010. The fastest rate of changes was definitely in Śląskie Voivodeship and was evenly distributed in the investigated subperiods.

Statistically, significant LTI changes ($R = 0.72$) correlate with changes in settlement areas which grew by 220.5 thous ha, i.e. 27%. The strongest growth has been recorded in Mazowieckie (45%) and Śląskie (39%) Voivodeships and the lowest in Lubuskie (9%) and Warmińsko-Mazurskie (10%) (Table 16.1).

The reduction in the LTI was mainly due to the liquidation of mining land and transport areas, primarily railroads and other transport infrastructure (land equipped with urban transport devices, such as depots, stops, etc. airports, gliderports, landing

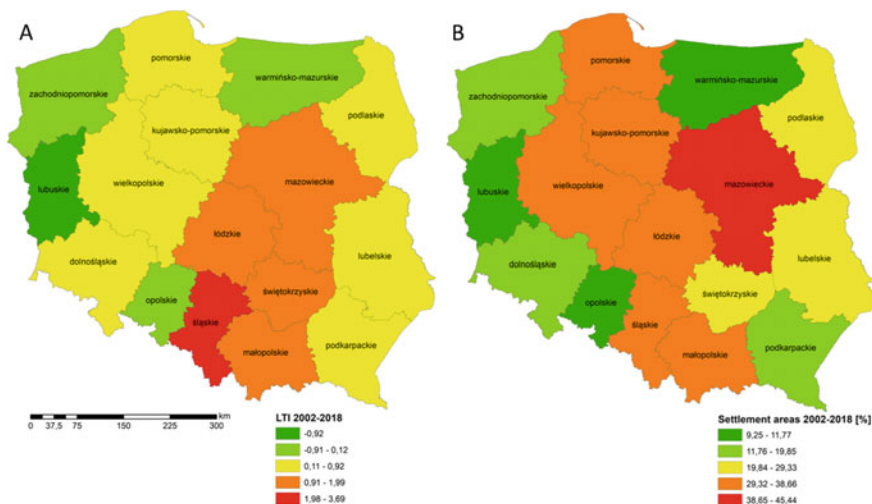


Fig. 16.1 Changes in the landscape transformation index (a) and in the share of built-up areas (b) in Poland’s regions in 2002–2018. *Source* Own study

grounds as well as areas related to water transport which were not under water, such as: port areas, harbours, floodgates and piers). In 2002–2018, 7.5 thous ha of mining land was lost. The decrease took place in all regions except for Mazowieckie, Świętokrzyskie and Małopolskie Voivodeships. In the case of transport areas, almost 12 thous ha of land changed its designation. In 2002–2010, as many as 48 thous ha of transport areas disappeared, but it grew by 36 thous ha in the following years 2010–2018.

The changes in forestry affected the LTI to a small extent because mainly agricultural land were afforested. They did not influence much the landscape in Poland as well. The share of woodland increased from 29.96% in 2002 to 31.6% of the land area in 2018. In the years 2002–2010, 510 thous ha of forest land was created with the 70% of which increased in 2002–2008. The average growth in regions was only 5.5%. The most considerable increase in the share of forests occurred in Łódzkie (8.7%), Warmińsko-Mazurskie (7.9%) and Mazowieckie (7.8%) Voivodeships.

16.4.3 Changes at Subregional Levels

A regional analysis has shown that the polarisation of land use is changing. In Voivodeships with numerous landscape transformations at the early stages of political shifts, changes in land use were more intense. The authors decided to check if the same could be said at a subregional level. The analysis examined Wielkopolskie Voivodeship, which had average results as compared to the rest of the country, both in terms of its state in 1989 and the rate of changes in the LTI. The mean growth

Table 16.1 Changes in the landscape transformation index and in the share of built-up areas [%] in Poland's regions in 2002–2018

	Landscape transformation index				Settlement areas			
	2002–2010	2010–2018	2002–2018	2002–2010	2010–2018	2002–2018	2002–2018	
	DOLNOŚLĄSKIE	0.0	0.6	0.7	9.24	8.09	18.08	18.08
KUJAWSKO-POMORSKIE	-0.3	0.9	0.6	13.68	19.46	35.80	35.80	
LUBELSKIE	0.3	0.6	0.9	10.22	13.77	25.40	25.40	
LUBUSKIE	-1.3	0.4	-0.9	1.37	7.77	9.25	9.25	
ŁÓDZKIE	0.9	1.1	2.0	19.73	14.58	37.19	37.19	
MAŁOPOLSKIE	0.5	1.2	1.8	12.63	17.82	32.70	32.70	
MAZOWIECKIE	0.8	1.0	1.9	24.76	16.58	45.44	45.44	
OPOLSKIE	-0.1	0.2	0.1	5.72	5.73	11.77	11.77	
PODKARPACKIE	0.1	0.6	0.8	7.98	10.99	19.85	19.85	
PODLASKIE	0.0	0.4	0.4	14.61	12.85	29.34	29.34	
POMORSKIE	0.1	0.4	0.5	21.21	11.53	35.18	35.18	
ŚLĄSKIE	1.9	1.8	3.7	23.86	11.95	38.66	38.66	
ŚWIĘTOKRZYSKIE	0.6	0.6	1.3	15.13	10.96	27.75	27.75	
WARMIŃSKO-MAZURSKIE	-0.3	0.4	0.1	-1.93	12.00	9.84	9.84	
WIELKOPOLSKIE	0.0	0.6	0.6	18.32	12.67	33.32	33.32	
ZACHODNIOPOMORSKIE	-0.3	0.2	-0.1	9.81	5.35	15.68	15.68	
Mean	0.2	0.7	0.9	12.90	12.01	26.58	26.58	

Source Own study

in the LTI in Wielkopolska communes in 1989–2018 was 3.05. In 24 out of the 212 investigated units, this index decreased (Fig. 16.2a). The decline in mining land in the poviats of Konin and Turek, where lignite mining ceased, was responsible for the fall in the index. In some communes, the fall resulted from the loss of land designated for development in urban spatial development plans. The record holder is the Dobra commune, where 591 ha of such land has been lost. Figure 16.2b shows statistically significant hot spots, cold spots and spatial outliers using the Anselin Local Moran's I statistic. What is visible is the clear polarisation of landscape transformations. In the north part of the region, there are communes with smaller changes (low-low cluster). The region's capital and adjacent communes are a hot spot, where the trend towards increasing landscape changes continues (high-high cluster). In the vicinity of Kalisz, however, there are communes where the landscape transformation process significantly accelerated during the political alteration (low-high cluster). In Konin and some neighbouring communes, post-mining areas were reclaimed for water, forest and agricultural purposes (high-low cluster).

Regionally, the LTI growth is mainly due to an increase in settlement areas ($R = 0.44$). On average, communes gained 181 ha of built-up areas. The largest increase occurred in former Voivodeship cities: Poznań (3032 ha), Kalisz and Nowe Skalmierzyce (788 ha) as well as Konin (707 ha). The communes neighbouring Poznań, such as Tarnowo Podgórne (885 ha), Kórnik (691 ha) and Swarzędz (671 ha) has noted considerable increases. The development of transport areas affected the landscape transformation as well ($R = 0.43$). The area of transport areas recorded a significant growth in communes in which motorways and expressways were built,

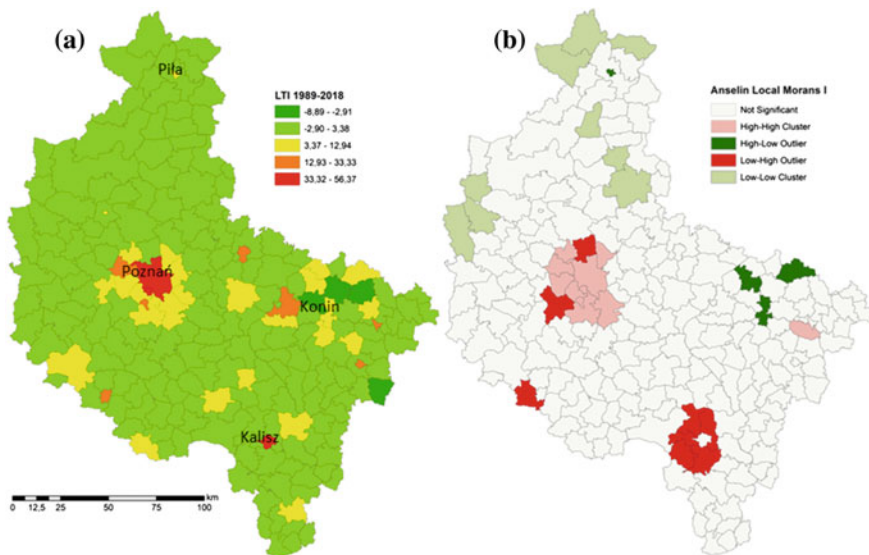


Fig. 16.2 Changes in the LTI in 1989–2018 (a) and cluster and outlier analysis (Anselin Local Moran's I) (b). *Source* Own study

e.g. Poznań (1,123 ha), Łubowo (314 ha), Dopiewo (281 ha), Kostrzyn (267 ha). An increase in settlement areas is related to a decrease in arable land ($R = -0.35$). On average, 118 ha were lost per commune. Changes in agricultural land are the most diversified of all changes among communes. For landscape and ecological reasons, the loss of meadows is a great disadvantage; it concerned 91% of all the analysed administrative units. An average commune in Wielkopolska lost 122 ha of meadows and in the record-holding commune of Przygodzice, as many as 410 ha disappeared. The situation was similar in the case of pastures. In the years 1989–2018 in Wielkopolska, an increase of over 38 thous ha of forests was recorded and woodland grew from 21.6% in 1989 to 22.7% in 2018. As in the case of agricultural land, changes in forestland were strongly diversified when it comes to subregions. The largest increases were observed definitely in the Piła subregion. In the commune of Okonek, 3.5 thous ha of forests were added, and in the commune of Jastrow, it was 2.3 thous ha. A loss in the woodland area was noted in 22 communes.

16.5 Urban and Rural Landscape Transformations as a Picture of Spatial Order in Poland

16.5.1 Urban and Rural Cultural Landscape: General Tendencies

Political changes in Poland have brought about radical urban landscape transformations in terms of the use and development of cities as well as their perception. The last three decades have been a period of searching and forming a new identity. Changes in urban landscapes started with privatisation processes, especially regarding industrial facilities. In city planning, two opposing phenomena could be noticed—from the return to the idea of ‘urbanity’ (understood as the restoration of quarter development) through the emergence of the monitored and gated estates to urban sprawl (Bonenberg 2011). The real estate market was dominated by new actors—private investors, national and foreign developers as well as subsidised social housing societies—which contributed to a deterioration in the quality of public spaces, often to their appropriation. In the 1990s, Polish cities for the first time saw representative headquarters of foreign companies and financial institutions, large-area shopping centres with parking facilities, car showrooms and fast-food restaurants. The free market, competition and the struggle for customer-centred advertising ubiquitous. As a result of intense motorisation, the transport network had to be expanded, which included the organisation of parking spaces, contributing to the deterioration of settlement conditions and the liquidation of greenery. After Poland’s accession to the European Union, there was a period of intense sports and recreational investments, large hotels and water parks. The inflow of EU funds allowed the modernisation of large post-communist residential blocks of flats. With regard to the colouring of renovated facilities, in the source literature there appeared the notion of ‘pastelozja’ (meaning the

abundance of different light colours) (Springer 2013). What was also observed was the construction of high-quality technical infrastructure and architectural facilities. Many socially well-revitalised places were created, although unfortunately in many cities, as a result of poorly conducted revitalisation processes, a so-called 'betonozą' took place—city squares/markets were deprived of greenery and their surfaces were hardened with concrete blocks.

The past three decades have also observed growing social inequalities—economic exclusions, the emergence of areas of poverty and enclaves of wealth. Smaller localities faced deindustrialisation; residents escape to larger centres and the population ages. Today, Poland has been dealing with advanced revitalisation and the gentrification of urban, industrial and mining landscapes. Historical and recognisable centres face a 'disneylandisation' of old cities and an often troublesome influx of tourist (Buczkowska and Malchrowicz-Moško 2012). The suburban zone is subject to the uncontrolled pressure of urbanisation (Staszewska 2013).

The majority of research on the state, evaluation and transformation of cultural landscapes indicate negative changes occurring in these landscapes today. The following terms appear: dying landscapes (Klupsz 2010; Kulczyk 2010; Lewandowski 2010) or disappearing ones (Wycichowska 2010) as well as fleeting, ephemeral, transient (Wojciechowski 2010) landscapes and even the notion of landscape extermination (Kistowski 2010). Economic as well as social and ownership factors are crucial for the shifts observed in the cultural landscape. The market economy caused dynamic changes in the proportion of agricultural and forest landscapes (forest management) accompanied by an impoverishment of the agricultural landscape structure (Ryszkowski 2001). What has been observed was native deciduous tree species being cut down and replaced with evergreens, avenues of trees cut down, mid-field ponds eliminated and drainage ditches silting up. The intensive development of new management forms (especially tourism and services) resulted in the abandonment of land cultivation. Farmland was sold off on a massive scale and designated for housing or recreational purposes (so-called second or summer houses). These processes threaten the uniqueness of a region and lead to the formation of a landscape typical of a standardised suburban zone. Changes in the designation and pattern of settlement development have been observed as well as ageing of the rural population and the depopulation of settlements, slow rural urbanisation, and the neglect of the regional architecture of farms and houses. The reclamation of municipal rights leads to landscape urbanisation. Easy access to construction materials contributes to the further standardisation of a landscape depriving it of style and identity (Myga-Piątek 2012). What has been noted is the dispersion and homogenisation of development, location of area-intensive and large-scale constructions and high-rise buildings with no attention paid to landscape determinants and no protection of valuable scenic views and panorama exposition zones, as well as landscape appropriation. The pace and scale of these changes cause many spatial conflicts. Thus, the landscape is subject to irreversible transformations (Uruszczak et al. 2015; Szczepańska and Wilkaniec 2014; Raszeja et al. 2010).

16.5.2 Structural, Physiognomic and Functional Changes in Cities and Rural Areas: A Case Study

Economic and political changes initiated in the 1990s triggered processes which resulted in dynamic, but chaotic urban and rural development. What followed was uncontrolled urban sprawl, which affected structural, physiognomic and functional changes of the discussed centres. It referred to the directions of rural growth. The specificity of thirty years of transformation of Polish cities and villages is worth presenting through the example of the Poznań region.

16.5.2.1 Poznań: Spatial and Landscape Changes in a Large Polish City

Large cities in Poland are very much alike. This statement does not concern the way of development, architectural features, the quality of the transport pattern or other functional and aesthetic properties. They are similar in terms of the distribution of development elements, management, problems concerning social, spatial, investment and financial matters. Their policies are determined by political, legislative and other decisions which specify the acceptable density of residential areas, land use, height of buildings as well as their function.

The features described above reflect the capital of Wielkopolskie Voivodeship—Poznań (Staszewska 2017). The downtown together with the surrounding estates form a pattern of mutually related centres which create the functional and cultural entirety. In terms of functional-spatial transformations, Poznań has not only the potential for attractive and stable development, but it also has problems which will limit or even inhibit its growth. The potential may include the preserved, historical urban pattern, mainly the composition elements (squares, street layout, historical buildings forming compact frontages, dominants, conservation protection), urban planning scheme, historic buildings and greenery pattern. What is also valuable are attractive points to observe panoramas, preserved vistas, urban greenery forms, preserved natural landscape elements such as zones of urban greenery (untamed), clumps of trees, the river, watercourses and water bodies in the city, making up the integral part of the spatial structure. What is visible are buildings forming walls of squares and streets in the downtown zone with a fairly unified form, and sports and recreational outdoor facilities. A framework road system enables the development of 'sedate traffic' in the city centre and integration between individual and collective transport. The railway infrastructure—urban railway stations—allows integration between transport subsystems within the agglomeration. Basic local services are quite dispersed; shopping centres combining grocery, clothing, footwear, electronic-technical stores and bookshops are identifiable.

The most important in the development of Poznań are the following: the need to improve the accessibility of hierarchically important sites, especially by enhancing the quality of public spaces and creating integrated public transport (Fig. 16.3). What is significant is the use of urbanised places which require renewal or functional





	
<p>Park of the Old Warta River Bed The park was built on the site of the former Warta river bed, which was buried in the 1960s. The design of the park was created in 2013–2015, the works started in 2014. One of the inspirations for this place were the meanders of the riverbeds and the accompanying topography and greenery. There are walking paths, a culture zone, bicycle paths, recreational spaces, an amphitheater, a square with a fountain and a playground in the park.</p>	<p>Święty Marcin Street One of the most important communication routes in the centre of Poznań. It connects the railway station, MTP grounds with the Old Market Square. For years this street has been one of the most representative in the city. The aim of the street revitalisation was to calm the road traffic and create additional pedestrian spaces, increase its commercial and service attractiveness and accessibility for public transport passengers.</p>
	
<p>Free Courtyard - Poznań City Hall The courtyard is open to office workers, residents and tourists. The space encourages relaxation, integration with modern equipment (mobile benches, flower beds) located in a historic setting. Interesting plant compositions and cultural events are an additional attraction.</p>	<p>Śródka Śródka is a district of Poznań which was cut off by the construction of a transit route and thus isolated from the city. In 2007, the crossing of the river was restored for pedestrians and cyclists over the Cybiński Bridge. The former monastery was renovated, the Interactive Center for the History of Ostrów Tumski was built, catering services appeared, and thus tourists, residents and artists. A colorful mural is a symbol of this part of the city.</p>

Fig. 16.3 Revitalisation of public spaces—examples. *Source* Photos by Szczepańska

changes (e.g. industrial areas) as well as the concentration of development and the protection of the assets of the natural environment. The pursuit of multi-functionality is valuable, understood as spatial and functional integration of areas designated for various purposes with the full involvement and participation of the residents.

16.5.2.2 The Structure and Development of the Polish Countryside: General Trends and Detailed Solutions (The Study of a Wielkopolska Village)

As a result of many administrative decisions, sometimes political as well as economic, the rural landscape has been subject to continuous transformations. Over the last 30 years, rural centres have adopted an urban lifestyle. The abandonment of regional development has begun; the living conditions of the population have changed. The organisation, development and rural architecture have altered. The following properties have undergone transformations: land plot sizes, density of roads and streets, housing density, size of green and recreational areas as well as the volume of the areas of intensive agricultural cultivation. Moreover, the land use patterns are changing. Areas, thus far rural, have been often transformed into districts of single-family houses (Staszewska 2013, 2018).

Today, the structure and development of rural settlement units are not subjected to soil conditions, and land relief does not refer to existing structures; they do not follow any logic and the principles of urban composition or architectural unity are not preserved. The only element organising the structure is the historical spatial pattern of development that helped shape the village (Fig. 16.4).

Rural settlements do not have a gradual concentration of development: from an open landscape outside the settlement to houses loosely distributed to some parts of compact housing; buildings typical in terms of scenery are not exposed, there are no entrances to and exits from housing estates, no squares, no hierarchically important sites, organised green areas nor public ones (Figs. 16.5 and 16.6). Villages lack links in the form of isolation greenery, squares or small architecture elements. The connection between housing development and water (river) does not exist at present. The rural development in Wielkopolska is highly diversified. The differences result from available building materials and construction methods and the financial means of the owners. This, in turn, is the effect of regional influences, the needs of the local population, the functionality and importance of particular places and buildings, social ties, concern for the unity of form, colouring and details. Therefore, the development has become the background, the basis and the foundation for the functioning, growth and existence of people. They, in turn—under the influence of fashion, other social circles, technology—activate processes of change. These seemingly minor changes usually cause an avalanche of decisions, restrictions, some organisation and the assignment of space (Micek and Staszewska 2019).

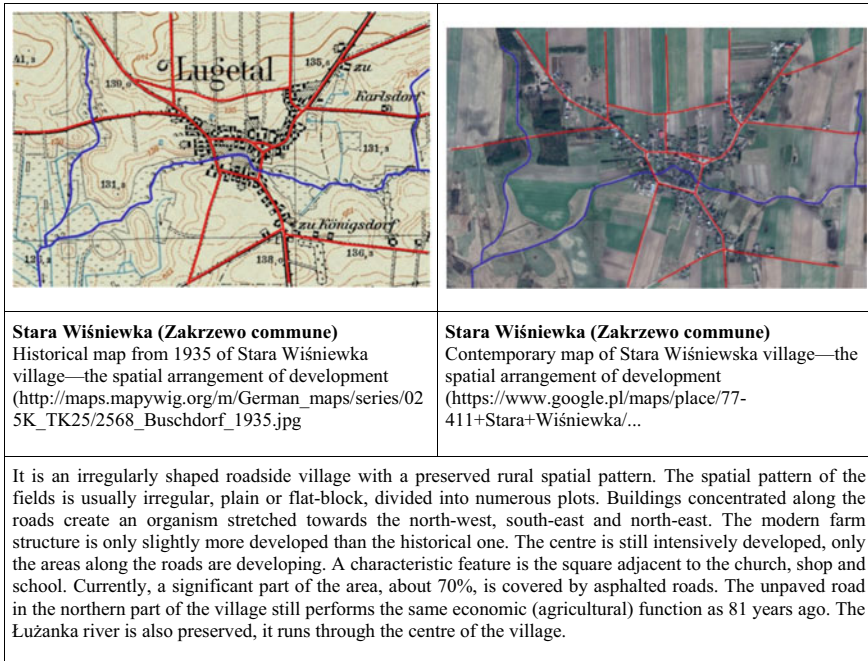


Fig. 16.4 Example of the historical spatial pattern of development. *Source* Staszewska (2018)



Fig. 16.5 Example of public space—positives. *Source* Staszewska (2018)



Fig. 16.6 Example of public space—dissonances. *Source* Staszewska (2018)

16.6 Guidelines for Correct Landscape Design and the Preservation of Spatial Order: General Recommendations

What is required is a shift in landscape perception and a reevaluation of the hierarchy of needs and expectations in general. The cultural landscape and the natural environment alike should be treated as strategic assets and managed rationally. It is necessary to maintain and strengthen landscape diversity as an expression of national, regional, local identity and durability considering laws of nature and also contemporary requirements of socio-economic growth and technical progress. These measures should rest on the awareness of the values recorded in the natural-cultural space and on reliable knowledge. Radical administrative and legal changes are needed as well as the implementation of a postulate that landscape values are a public good. It is essential that curricula include the content concerning aesthetics and care for beauty in human surroundings and prepare for landscape actions. Public participation should be popularised as well as the development of conflict prevention skills in landscape design and spatial order.

The protection of landscape assets requires the following steps (Mizgajski and Lowicki 2014):

- The implementation of the landscape convention by the valorisation of landscapes at national, regional and local levels as well as the determination of assessment criteria for the quality of an open landscape and on this basis the adoption of regulatory measures to improve landscape values;
- The recognition of a landscape audit as an indispensable basis for each level of spatial development planning;
- The improvement of the professional competences of urbanists and planners in terms of natural and landscape conditions of spatial planning;
- The introduction of a hierarchy of spatial planning arrangements concerning the landscape, especially with regard to the possibility of locating anthropogenic landscape dominants;
- The design of spatial order in units larger than a commune by drawing up spatial development plans for functional areas, especially metropolitan ones;
- The effective inclusion of a landscape component in sectoral political strategies, especially in the fields of:
 - agriculture, by:
 - using EU financial instruments for designing environmentally friendly agriculture that fosters biological diversity,
 - increasing the effectiveness of actions for reducing nitrogen outflow from agricultural sources to the environment,
 - increasing the effectiveness of protection against unjustified felling of trees and shrubs;
 - forestry, by introducing mechanisms encouraging afforestation in the areas with the lowest share of forests and preservation of open landscapes in heavily afforested areas;
 - urbanised areas, by designing compact settlement patterns and counteracting heavily forked systems along main roads;
 - infrastructure of the following types:
 - road infrastructure, by counteracting the elimination of road woodlots and by assigning places with attractive views and protection of the panoramas from them,
 - telecommunication infrastructure, by eliminating the duplication of telecommunication towers belonging to different operators and creating features of outdoor facilities and their location in places minimising the size of landscape dominants,
 - energy infrastructure, by building power lines so that their importance as landscape dominants will be minimised;
- The closer integration of measures for designing the high-quality open landscape with the simultaneous protection of:
 - (a) natural assets, especially by the implementation of the ‘green infrastructure’ system covering legally protected areas and ecological corridors connecting them;

- (b) water resources, especially by the protection of waters against the eutrophication and by water retention in ecosystems;
 - (c) recreational assets, especially by designing a harmonious mosaic of landscape elements discerned from tourist trails and viewpoints;
- Raising knowledge and social sensitivity of the socio-cultural and economic importance of landscape assets.

16.7 Summing-Up

After 1989, Poland's natural and cultural landscape have undergone considerable changes. They resulted to a great extent from the liberalisation of spatial planning provisions. The experience of a centrally planned socialist economy has led to an aversion to all forms of top-down planning. This was even noticeable in the name of the act on spatial development of 1994, which replaced the act on spatial planning of 1984. The act of 1994 left its distinctive mark on the landscape, because it handed over the right of space allocation to communes which, adopting spatial development plans, created local laws. Since the communes can spend their budgets more freely than in previous years, it has become natural to design space so that it could bring the greatest financial benefits. The same applies to personal ownership. After years of a planned economy based on state ownership, real estate owners want to use them at their own discretion which causes conflicts with the needs of local or regional communities, or even the whole country. Thus, the environmental aspects of spatial management were often marginalised or even neglected, despite the obligation to draw up, a forecast predicting the effects of local spatial development plans on the natural environment.

The most typical manifestation of the impact of the transformation on the landscape is an increase in built-up areas, especially subregional differences in these changes. In relation to 2002, settlement areas grew on average by 27% in Poland but in Mazowieckie Voivodeship, where the largest Polish agglomeration with 1.7 mln inhabitants is located, this figure hit 45%. In the communes of Wielkopolskie Voivodeship, the average growth in settlement areas was 62% in the years 1989–2018, and a lot of communes increased the area of settlement areas twice, or even three times. At the beginning of the transformation, built-up areas were mainly expanded in cities. Later, rural communes situated near larger cities started to dominate. The twenty-first century is the age of suburbanisation in Poland. According to the surveys conducted among those moving out of Poznań, the capital of Wielkopolska, the choice of a new residence depended mainly on natural assets, including landscape values (Beim and Tölle 2008). The financial conditions of the purchase, construction or the tenancy were less significant when considering location. In this context, the existing gap between Voivodeship and commune has become an important problem in today's system of planning documents, which clearly makes it more difficult to harmonise a spatial development process in units larger than a commune. The solution to this problem may be the preparation of spatial development plans for metropolitan areas.

The second, frequently emphasised gap in existing legal regulations is the possibility of following a spatial policy in a commune on the basis of individual administrative decisions, without the need to adopt local plans. In 2017, local spatial development plans covered only 30.5% of the country (Śleszyński et al. 2018).

The factors described above resulted in the polarisation of changes in land use, both on local and regional scales (see Chap. 4). Disproportion in the development of regions negatively affects the landscape. In subregions featuring rapid building development, a crucial problem is the lack of proper infrastructure expansion, especially sewage systems as well as local and access roads. As a result, there is a chaotic spread of buildings, which degrades the open landscape and simultaneously intensifies the pressure on the environment through increased road load and noise as well as disorderly sewage management. Additionally, this state generates long-term costs for local governments, resulting from greater construction expenses and maintenance of water-sewage and road infrastructure as well as an increase in the cost of public services including education and transport. On the other hand, in subregions, where a small increase in development is observed, afforestation grows, often along with the natural value. Unfortunately, this does not involve the development of infrastructure, which would enable environmentally friendly access to natural assets while increasing landscape and architectural diversity.

The design of spatial order and a landscape, both in cities and rural areas, should be supported by the participation of local communities. It is important to consider elements such as squares, parks, alleys and gardens, to design parking spaces, to maintain biologically active areas in the form of green corridors, to manage and retain rainwater so that it could increase groundwater supply, to raise architectural requirements, especially in relation to buildings constructed in areas with the highest and natural values, to provide effective public transport and to implement easier pedestrian and bicycle traffic, to optimise the street network (construction of new streets, traffic segregation), to prepare land offers including planning information for investors (this concerns both residential areas and those designated for services and economic activity), to carry out planning analysis on space revaluation, including public spaces, to add social and economic issues to planning processes, to address questions of safety by preventing the effects of disasters and to apply protection in the event of their occurrence as well as to respect public safety principles in architecture and city planning. It is extremely significant to prevent excessive expansion of development along main transport routes, to design new urban systems that are distinctive in their compactness and diversity of functions and respect the existing urban patterns, to maintain the continuity of protection of open area systems, parks and recreational areas, to introduce different forms of public spaces—alleys, meeting places, squares, playgrounds, etc—to develop the coexistence of dominating forms of residential development and economic activity as well as the natural environment.

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