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**THE ISSUE OF LANDSCAPE SUSTAINABILITY  
WITH REGARD TO THE RURAL AREAS DEVELOPMENT**

*KWESTIA ZRÓWNOWAŻENIA KRAJOBRAZU  
W ODNIESIENIU DO ROZWOJU OBSZARÓW WIEJSKICH*

**Key words: sustainability, landscape, development, rural areas, natural environment**

*Słowa kluczowe: zrównoważenie, krajobraz, rozwój, obszary wiejskie, środowisko naturalne*

**Abstract.** The paper deals with the phenomenon of sustainability, which refers to the landscape within the rural areas development. The article discusses the question of rural landscape, its basic natural and cultural elements, as well as different aspects of landscape sustainability. The problem of valorisation of landscape components has also been shown. Moreover, the issue of landscape determinant of rural areas development and new measures potentially supporting the process of rural areas sustainability have been described. Furthermore, the final codas referring to the landscape, its sustainability and potential support have been stated.

**Introduction**

The process of rural areas development in its multidimensional nature concerns also the issue of landscape sustainability. The landscape aspect in the developmental structure presents a composite picture in terms of its character and requires elaborate attitude. The original landscape definition mentioned and assumed by Alexander Freiherr von Humboldt (1769-1859) alludes to the perception of landscape as a total character of terrestrial surroundings (in German: „*Totalcharakter einer Erdgegend*”) and seems to underline the complexity of the „landscape” notion [Ellenberg 1990]. Considering landscape as an important part of the quality of life for people everywhere and especially in the countryside and rural areas recognised as being of outstanding beauty, landscape especially nowadays, in times of modern transformations, appears to be the basic component of European natural and cultural heritage, contributing to the formation of local cultures as well as to human well-being and consolidation of the European identity [European landscape... 2000].

Moreover, looking for sustainability on rural areas we have to consider the optimal use of the possessed environmental and cultural resources, e.g. natural landscape and cultural heritage. Synchronizing the activities for sustainable development, both qualitative and quantitative aspects have to be taken into account in terms of proper exploitation of resources inherited from nature or treated as a cultural legacy. One should also mention the visual and aesthetic values of landscape, which would invigorate the work on landscape sustainability with regard to its spectacular perception.

Additionally, there is a problem of sustainable landscape ergonomics which may be treated in a static or dynamic way directly or indirectly combined with multifunctional permanent development with reference to properly balanced proportions between the individual natural landscape components determined by topography and anthropogenic functions of the rural commune resulting from its predispositions and accumulated cultural capital.

**Rural landscape as a subject of discussion**

Landscape constitutes the essential scenery of events in the lives of the majority of rural areas inhabitants, but it is even more significant as an integral element of development of different forms of tourism, which, consequently, increases the importance of attractiveness of rural areas touristic offer, having simultaneously the crucial meaning for the customers and thus the demand for rural areas recreational services. Therefore, the landscape occupies an important space in rural reality and plays a substantial role in rural areas development, being of both economic and social character.

The notion of „rural landscape” is spread worldwide and understandable in many languages and thus in Latin – *regio ruralis*, in French – *paysage rural*, in German – *Dorflandschaft*, in Italian – *paesaggio rurale*, in Russian – *сельский пейзаж*, in Ukrainian – *сільський краєвид*, and finally in Japanese – 田園風景 (pronounce: *denenfükei*). However the substantive delimitation of this notion may differ.

In year 2000, in Florence – the European Landscape Convention (*Convention Européenne du Paysage*) was signed. According to this Convention: „Landscape means an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors”. Furthermore the Convention underlines that landscape plays „an important public interest role in the cultural, ecological, environmental and social fields, and constitutes a resource favourable to economic activity and whose protection, management and planning can contribute to job creation” [European landscape... 2000].

Misley in turn [2003] observes that landscape is „a multidimensional space embracing people, which is synthesised in the human mind”.

More traditionally, landscape may be perceived with a narrower as well as broader connotation. Landscape in a narrower meaning may be perceived as a given fragment of land with a defined physiognomy constituting the visual way of expressing natural and anthropogenic elements. On the other hand, landscape understood in a broader meaning refers to the synthesis of both material (natural and anthropogenic environment) and image (physiognomic) layers. Thus, it concerns the content and form, often called cultural landscape [Koreleski 2007b].

Following Borgmann [2009], cultural landscape is „an agricultural landscape intensively used by people under conditions of small-spaced economies”. Furthermore rural cultural landscape ought to be understood as an expression of human creations in rural space [Borgmann 2009].

Briemle [1978] presenting the definition of cultural landscape (German: *Kulturlandschaft*) on rural areas mentions the notion of agricultural landscape (German: *Agrarlandschaft*) and underlines the role of individual households which guard the ecosystem stability within the natural and cultural diversity.

Finally we may assume that landscape is: „a space where people reside or spend time and refers to both urban and rural, degraded and highly valuable areas, areas of significant as well as ordinary aesthetic qualities” [Koreleski 2008].

### Different aspects of landscape sustainability

The history of formal sustainability referred to the development in Europe, in terms of notion – dates back to early 1970’s and to the UN conference in Stockholm, but its roots go back further to the medieval times of late 13<sup>th</sup> century, where the sustainable order was established and implemented into forestry in the Nuremberg area (*Nürnberg Waldordnung zum Schutz der Reichswälder von 1294*). Thus, the German experience seems to have a long tradition and to be in convergence with Germanic mentality based on overall balance and ordering within the process of constant development indicating simultaneously its proper rhythm (*richtiger Rhythmus des Prozesses*). Even in the past the environmental component appears to play an intrinsic role in the development bringing us closer to the understanding of eco-development in which the quality of life combined with the quality of environment and in that with landscape have been stressed. Moreover one may notice that landscape sustainability with regard to eco-development and ergonomically friendly spatial order are the intrinsic components of rural areas development paradigm, in which rural landscape creation plays an important role [Koreleski 2008].

World Commission on Environment and Development (WCED) assumed in Our Common Future [1987] – better known as the Brundtland Report, that: „Sustainable development is the development that meets the needs of the present without compromising the ability of future generations to meet their own needs”. Additionally the Report emphasized that sustainable development is not the state of harmony but rather the continuous process.

The preamble of the European Landscape Convention also mentions that sustainable development is based on „a balanced and harmonious relationship between social needs, economic activity and the environment” [European landscape... 2000]. Thus, sustainable development links such elements as: economics, environment and society in one socio-ecological system in which landscape may play an important role [Crabbé 1997]. Obviously, in that case landscape is supposed to be

understood as a sustainable and proper multifunctional land use. The more sustained is rural areas development the greater are the chances for better understanding of landscape preservation and smaller pursuit of blind economic progress. So, in order to let regional development become sustainable „more environmentally-friendly practices and technologies will need to be implemented, along with appropriate policies to support sectoral developments such as renewable energy sources, sustainable forest management, sustainable tourism, organic farming and improved public transport” [Carpathians environment... 2007]. Thus, managing landscape in terms of its sustainability is to „ensure the regular upkeep of a landscape, so as to guide and harmonise changes which are brought about by social, economic and environmental processes” [European landscape... 2000].

Considering in turn, interdependently, the four aspects of sustainable development – social, economic, environmental and cultural as well as high dependency of natural systems on human cultures, which seem to draw their substance from them, we may assume that „nature, culture and landscape combine and mutually strengthen one another and thus become the very bedrock of sustainable development” [Déjeant-Pons 2007].

Furthermore, the concept of sustainable development suggests a new qualitative mind-set attitude based on responsible life, individual as well as public, together with social and natural environment with regard to landscape, considering also the ecological barriers and public expectations [Skowroński 2006].

Nowadays, we may observe a rapid change of land use in Europe, which, in consequence, becomes an increasingly dynamic characteristic of the European environment, undergoing transformation of landscape causing the new problem and necessity for identification of areas of deformed landscape towards their future recultivation. Hence, multifunctional land use seems to be an essential basis for the management of European landscapes [Št’astná 2007]. Following Naveh and Liebermann [1984], landscape in Central Europe should be treated neither only in aesthetic terms nor in terms of the physical environment, but holistically – in spatial, structural and visual dimensions. In practice, e.g. sustainable management of landscape in Greece means a constant struggle to see sensitivity prevail along with the prudent management of space and the environment through the promotion of a cohesive and comprehensive landscape policy [Beriatis 2003].

### Valorisation of landscape components

The question of landscape evaluation requires the analysis of its components which enables us to carry out the procedure of complex valorisation of landscape referring to both natural and anthropogenic (cultural) components. Beginning with natural components of landscape we may assume that axiological valorisation of landscape consists of economic and aesthetic approach.

Economic valorisation is based on landscape predispositions for its economical exploitation. This approach comprises three main components:

- substances (water, mineral and spa water sources, air, therapeutic mud, soils, minerals),
- potential free energies (sun, wind, hydro, geothermal),
- general environmental conditions for various forms of land use – implicating functions of communes.

Aesthetic valorisation of landscape concerns aesthetical values in terms of:

- land use (agricultural, woodlands, water, built-up areas, communication tracks, wastelands e.g. rocks),
- relief (planes, undulated areas, hilly areas, mountains),
- areas and objects of environmental protection – sights of nature (national parks, landscape parks, nature reserves, nature monuments).

In case of anthropogenic components of landscape we may find:

- industrial objects,
- technical infrastructure objects,
- social infrastructure objects (functional),
- cultural heritage (monuments).

According to Borgmann [2009] the cultural landscape gets its regional shape especially by:

- the function of settlement,
- types of economical activities,
- development of traffic networks.

In turn, the physical component approach to landscape evaluation may be based on components of three orders [Crofts 1975]:

- major – form, relief, water presence,
- minor – irregularities and isolated occurrences,
- ephemeral – water character and slope activity.

As a consequence of the identification of landscape components appears the issue of landscape typology. In Poland one may distinguish three physiognomic landscape types [Koreleski 2007a]:

- lowland landscapes, involving such subtypes as: river valleys, seacoasts, river deltas, marshes, outwash and moraine landscapes, etc.,
- upland landscapes, including the following subtypes: loessial landscapes, landscapes developed on carbonate rocks and landscapes on silicate rocks,
- mountainous landscapes involving such subtypes as: the landscape of mountain valleys and basins, mountain slopes, ridges and peaks.

Next, considering the landscape functions we may list the following types of landscapes [Koreleski 2007a]:

- the agricultural landscape including subtypes distinguished on the basis of land use: for cereal crops, orchards, fodder plants, etc.,
- the agricultural landscape involving subtypes distinguished on the basis of field systems: the open-field system, the patchwork field system, the fief field system, etc.,
- the forest landscape including subtypes: coniferous, deciduous and mixed,
- the tourist – recreational landscape involving subtypes referring to agri-tourism and rural tourism,
- the industrial, service and communication landscape.

In Poland the most frequent type of rural landscape combines the agricultural function with other economic landscape functions.

All examples of potential landscape components, mentioned above, may be useful for landscape valorisation by assigning points to the basic natural and cultural elements of the landscape with the help of precise methods, e.g. Söhngen's method, Wejchert's method or photographic method.

### **Landscape determinant within the rural areas development**

The development of rural areas is a compound process based mostly on the course of economic events in the individual communes. Among many determinants of rural commune development emerges also the landscape. There are certain imponderables referring to landscape attractiveness which influence the demand for recreation and tourism on rural areas (agritourism, ecotourism), concerning as well other rural leisure time activities. These imponderables relate mostly to the visual – spiritual value of landscape which firstly affects and secondly attracts people (tourists, customers) to come or to go back to places pleasant in terms of landscape, e.g. rural areas with unique landscape and atmosphere.

In practice, landscape aesthetical identification appears to be a heritage almost ignored by the methods of production and consumption of the last fifty years but, luckily, sustainable development, carrying the know-how from the past, begins to be again discovered and incorporated into ecological planning [Aceytuno 2003]. Hence, mutual benefit may be achieved by considering together all components of landscape sustainability (social, economic and environmental), waiting for positive economic consequences of such development. From the recognition that social capital is the „glue” that binds societies together and makes them function, there is only a small step to the insight that landscape binds societies and nature together in one sustainable ecosystem [Howe 2005]. Regardless of everything the landscape is the fatherland and, independently from the borders of different countries, promoting uniform thinking about this issue seems to be indispensable. Thus, people and landscape belong together, one does not exist without the other, and therefore it is of special developmental importance that landscape is understood and not just perceived by people [Misley 2003]. Then, the achievement of landscape sustainability within one ecosystem is feasible.

The basic qualitative objective in terms of landscape preservation is to: „onserve and maintain the significant or characteristic features of a landscape, justified by its heritage value derived from its natural configuration and / or from human activity” [European landscape... 2000].

EU common governmental attitude is also positive to landscape preservation and cultivation stressing that state of natural environment is an intrinsic determinant of rural areas attractiveness and seems to be fundamental for the development of tourism on these areas [Identyfikacja 2009].

Hence, by reversing the predominant trend of neglect of the landscape sustainability, there appears a developmental perspective for the improvement of the living standards and general quality of life on rural areas.

### **New measures potentially supporting the concept of rural areas sustainability**

The concept of rural areas sustainability with regard to landscape component of development demands an indication of certain potential measures which would consider this issue in a parametrical way. At the beginning one should mention the basic elements of rural areas sustainability:

- sustainable land use,
- sustainable agriculture,
- sustainable forestry,
- sustainable water management,
- sustainable recreation,
- sustainable environment (nature),
- sustainable land development.

Sustainable landscape is, to a certain extent, the resultant of all above-mentioned elements of sustainability.

On the basis of the determinants of landscape sustainability which would be derivatives of most of the above quoted basic elements of rural areas sustainability, e.g. land use, recreation, land development, etc., one may create a Synthetic Index of Landscape Sustainability, put forward in the following formula:

$$SI_{LS} = \Sigma \Delta_1 \dots \Delta_n / \text{number of determinants}$$

where:

$$SI_{LS} = < 0 ; 1 > .$$

$\Delta$  = distance between the optimal value and the real one.

Obviously, earlier we have to presume the optimal values for each determinant, which would depend on the commune function and landscape conditionings.

Rural areas development depends mostly on functional sustainability of individual communes. Thus, the commune function appears to be a keyword. The term „function” is derived from a Latin word *fungor* meaning following the objective in the spirit of duty and responsibility, according to his or her predisposition. In our rural case, the function refers to the tasks to which the commune is destined so as to pursue the process of harmonized development considering the laws of economics, such as the original law of scarcity and the market law of supply and demand. While analyzing the implementation of the commune function into practice we should also take into account the question of ergonomics.

Coming closer to the relationship between the function (profile) of a rural commune and its development, with regard to the landscape determinant, we may face two dependencies defined by two elasticities:

- elasticity of the commune function impact on landscape ( $E_f^L$ ),
- elasticity of the commune function impact on economic development of commune ( $E_f^D$ ).

Elasticity of the commune function impact on landscape shows how firmly the landscape (natural and cultural environment) will be affected by the alterations of the commune function (if we change, modify or develop the rural commune function). This elasticity may be described by the following formula:

$$E_f^L = \Delta L / \Delta f$$

where:

- $E$  – elasticity,
- $f$  – function of a commune (profile of prevailing activities),
- $L$  – landscape,
- $\Delta$  – change, alteration.

In the first elasticity, the commune function impact on landscape may be positive, but a threat appears if it is negative.

In turn, elasticity of the commune function impact on economic development shows how firmly the economic development of a commune will be changed as a reaction to alterations of the commune function (if we change, modify or develop the rural commune function). This elasticity may be presented by the following formula:

$$E_f^D = \Delta D / \Delta f$$

where:

$E$  – elasticity,

$f$  – function of a commune (profile of prevailing activities),

$D$  – economic development of a commune,

$\Delta$  – change, alteration.

In the second elasticity – instead of the impact on landscape, we deal with the reaction of the economic development of a commune.

We may assume that sustainability is the derivative of the relation of two elasticities (mutual elasticity effect). The result may be observed in positive or negative changes which may be often contradictory while confronting the environmental – landscape aspect with the economic ones. The desideratum would be a convergent adjustment of both landscape and development with regard to the rural commune function. We may presume that the following relationship is proper:

$$|E_f^L| < |E_f^D|$$

Considering the landscape sustainability in terms of landscape preservation, such relation gives a better opportunity for sustainable development of a commune within the local and regional development. Due to positive or negative changes, which may occur while analyzing the above mentioned elasticities, we use the absolute value brackets.

The relation described above, concerning sustainable development, lessens the threat of uncontrolled economic development and potential damages to the landscape (natural and cultural heritage).

## Conclusion

During the progress of rural areas development the landscape inevitably undergoes the process of transformation. In order to follow this process in a sustainable way we have to protect cultural and natural heritage by inhibiting or slowing down the pace of civilization changes, stressing simultaneously better adjustment of the commune function, in terms of harmonized ergonomics, in order to achieve the level closer to the overall sustainability. Different aspects of landscape sustainability, valorisation of landscape components as well as measures potentially supporting the concept of rural areas sustainability should also be taken into account while considering such complex issue.

Moreover, as Wagenknecht [2009] notices, permanent changes in human activities, habits and lifestyle require a sophisticated approach to the preservation of the Outstanding Unique Values of Landscape.

Furthermore, landscape has an important public interest role and plays an intrinsic part in the reinforcement of the European cultural heritage identity. The role of landscape comprises cultural, ecological, environmental and social fields, constituting at the same time a resource favourable for sustainable economic activities, particularly tourism and recreation on rural areas [European landscape... 2000].

As an additional remark, we should mention that Poland possesses a notable potential in terms of natural and cultural landscape, for example such types of landscape as: agricultural, forest, recreational, residential, resort, mountainous. Summing up, we may state the following codas:

1. The rural landscape is a resultant of different proportions between natural and cultural heritage.
2. Both natural and cultural heritage are the main components of the sustainably developed landscape.
3. The concept of conscious landscape sustainability should be formed with the relevant know-how based on a multiplane and complex attitude to the natural as well as cultural heritage.
4. There is a positive attitude of the European Community (*Communauté Européenne*) authorities in terms of regional support for rural areas sustainable development with regard to the landscape component as well.
5. The Council of Europe (*Conseil de l'Europe*) promotes the proper landscape perception in local – rural and regional scale.

Hence, looking into the future the landscape appears to be a key element of individual and social well-being and quality of life.

### Bibliography

- Aceytuno J.M.** 2003: Architecture and insular landscape. Council of Europe. Memory of the heritage. *Naturopa* no. 99, p. 33.
- Briemle G.** 1978: Flurbereinigung – Bereicherung oder Verarmung der Kulturlandschaft? [In:] Schwäbische Heimat, Stuttgart, 29. Jahrgang, Heft 4, p. 226-233.
- Beriatos E.** 2003: The battle against ugliness. Council of Europe. Memory of the heritage. *Naturopa* no. 99, p. 33.
- Borgmann H.** 2009: Fuerst Pueckler's Parks in Branitz and in Bad Muskau (Park Muzfkowski). [In:] Cultural Landscape – across disciplines (ed. J. Hernik). Bydgoszcz-Kraków, pp. 207-216.
- Carpathians environment outlook. 2007: Published by the United Nations Environment Programme. Chatelaine, Geneva, Switzerland.
- Crabbé P.** 1997: Sustainable development: concepts, measures, market and policy failures at the open economy, industry and firm levels. Industry Canada, Ottawa. Occasional Paper, No. 16.
- Crofts R.S.** 1975: The landscape component approach to landscape evaluation. University College London, MS received 4 April.
- Déjeant-Pons M.** 2009: Cultural landscape across disciplines [In:] Cultural Landscape – across disciplines (ed. J. Hernik). Bydgoszcz-Kraków, p. 13.
- Ellenberg H.** 1990: Bauernhaus und Landschaft – in ökologischer und historischer Sicht. Verlag Eugen Ulmer, Stuttgart, p.12.
- European Landscape Convention. 2000. Spatial planning and landscape division of the council of Europe. 20 October, Florence.
- Howe K.S.** 2005: Perspectives on European Rural Development: The issue of „Sustainability” [In:] Rural development in the enlarged European Union (ed. K. Zawalińska). Institute of Rural and Agricultural Development, Polish Academy of Sciences, Warsaw, pp. 29-41.
- Identyfikacja i delimitacja obszarów problemowych i strategicznej interwencji w Polsce. 2009: Ministerstwo Rozwoju Regionalnego, Instytut Badań Strukturalnych, Warszawa.
- Koreleski K.** 2007a: An outline of the evolution of rural cultural landscapes in Poland. [In:] Romanian Review of Regional Studies. *Journal of the Centre for Regional Geography*, vol. III, no. 2, Presa Universitară Clujeană, Cluj-Napoca, Romania, pp. 23-28.
- Koreleski K.** 2007b: Systematics and review of rural land valorisation methods for the needs of landscape use and shaping. [In:] Cultural landscape – assesment, protection, shaping (ed. J. Hernik, J.M. Pijanowski). Wyd. AR w Krakowie, Kraków, p. 21-28.
- Koreleski K.** 2008: Theoretical and practical aspects of rural landscape creation. [In:] Cultural landscape, protecting historical, cultural landscapes to strengthen regional identities and local economies. Infrastructure and Ecology of Rural Areas, no. 12. Polish Academy of Science. Commission of Technical Infrastructure, Kraków, p. 140-154.
- Misley K.** 2003: The landscape as a concept. Council of Europe. Memory of the heritage. *Naturopa*, no. 99, p. 32.
- Naveh Z., Liebermann A.** 1984: Landscape ecology – theory and applications. Springer Verlag, New York.
- Our common future 1987 (Brundtland Commission Report). World commission on environment and development (WCED). Oxford University Press, Oxford.
- Skowroński A.** 2006: Zrównoważony rozwój perspektywą dalszego postępu cywilizacyjnego. *Problemy Ekoro-zwoju*, no. 1(2), p. 47-57.
- Št'astná M., Toman F., Dufková J.** 2007: How to improve landscape sustainability. [In:] Problems of world agriculture. Polish agriculture and food economy within the EU framework (ed. H. Manteuffel-Szoeg). Warsaw University of Life Sciences Press, Warsaw, vol. 16, p. 80-87.
- Wagenknecht S.** 2009: Application of spatial information systems for the management and monitoring of protected cultural landscapes. [In:] Cultural Landscape – Across Disciplines (ed. J. Hernik). Bydgoszcz-Kraków, p. 281-296.

### Streszczenie

W artykule skoncentrowano się na dyskusji dotyczącej krajobrazu wiejskiego i jego miejsca w systemie rozwoju obszarów wiejskich, jak również na jego związkach, roli i znaczeniu dla koncepcji zrównoważenia rozwoju. Poruszono ponadto kwestie dotyczące waloryzacji komponentów krajobrazu oraz nowych miar wspomagających proces równoważenia krajobrazu obszarów wiejskich. Sformułowano wnioski w zakresie krajobrazu wiejskiego, jego zrównoważenia oraz potencjalnego wsparcia tego procesu.

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