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CULTURAL LANDSCAPE INDICATORS OF THE LAKESIDE AND RIVERSIDE VILLAGES OF THE ŁĘCZYŃSKO-WŁODAWSKIE LAKELAND

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Abstract. Cultural landscape indicators are quantitative and qualitative measures which related to the diverse features of the environment, including the material and non-material cultural heritage and the landscape physiognomy. They can be analysed in relation to architectural, spatial, social, visual, perceptual, and economic aspects. This article aims to identify such an extensive set of indicators in relation to seven villages located in the Łęczyńsko-Włodawskie Lakeland. The common feature of the analysed areas is their strong association with the lake or river, which was emphasized by the use of specific indicators related to the characteristics of the waterside areas. As a result, for each locality 18 indicators were defined. The result showed that the highest quality of the cultural landscape possess Wola Uhruska, Lake Krasne and Bug river in Wola Uhruska, the lowest feature Grabniak and river Wieprz in Kijany. Besides, it was showed that villages generally are of higher quality of cultural landscape than water areas connected to them.

Key words: cultural indicators, landscape indicators, lakeside villages, riverside villages, Łęczyńsko-Włodawskie lakeland

INTRODUCTION

The assessment of cultural landscape indicators (CLI) comprises various concept and approaches. It mainly derives from very broad understanding of the concept of cultural heritage. This term refers to all aspects of built-heritage (value, state, fragility), physiognomy of landscape (urbanised, agricultural, peri-urban areas) as well as to intangible cultural values such as place identity and perception [Volpiano 2011]. CLI are also applied to validate the forms of greenery designed by man [Tomao *et al*. 2015], to monitoring the spatial changes of land use structure [Szűcs *et al*. 2015] or to define the ephemeral variables such as

familiarity and nostalgia [Ginting and Wahid 2015]. Therefore, so far elaborated categorization of those indicators use both objective and subjective criteria of assessment. In relation to the first type, many researchers applied the GIS-techniques [e.g. Albert *et al*. 2016, Peña *et al*. 2015], others based their studies on the analysis of legal documents such as municipal plans, statistic data or cultural heritage record [e.g. Zoeteman *et al*. 2016]. Indicators based on the subjective approach, derives from the application of sociological studies such as questionnaire, field survey or spatial mapping of culturally important objects and sites [Bryce *et al*. 2016, Ginting and Wahid 2015].

Generally, CLI can be divided on the three types [Sowińska-Świerkosz 2017b]. The first relates to the quantitative or qualitative character of the indexes. For example number of monuments, percentage of population and the area of a given landscape type are used together or alternatively with state of preservation, social satisfaction and spiritual values indicators. The second type refers to the CLI classification into the pressure, state, transformation and action indexes. Due to the methodological deficit and difficulties in acquire the date, most categorization are based on the solely state indicators (e.g. number and state of cultural monuments), or state indexes are analysed together with transformation (e.g. current and historical land-use structure) or action (e.g. number and promotion of cultural festival) ones. Pressure indicators are used rarely, and refers to threats such as natural hazards to build-heritage, the urban expansion or impairments through visual, acoustic or olfactory disturbances [Albert *et al*. 2016, Neri *et al*. 2016]. CLI can be also divided according to the sphere to which they refer e.g. there are architectonic, social, economic, spatial, political and related to the perception indicators. Most of them can be classified to the spatial sphere of the landscape as they are based on the GIS mapping (e.g. cultural historical land use type, built-up areas). A high share of indices can be also called as of social (e.g. social bonds, percentage of people participating in traditional activities) and political (e.g. revitalization of historic spaces, creating of cultural trails) character [Sowińska-Świerkosz 2017b].

Given the multitude of indicators type, also various types of categorization schemes have been elaborated and tested so far. Some of them [e.g. Nahuelhual *et al*. 2014, Sutherland *et al*. 2016], consisted of only one specialised index aiming at the assessment of a particular characteristic in particular conditions, which considerably lower the cost of analysis and monitoring. Others, are based on a set of indicators of the same type, i.e. qualitative or quantitative, or of only state/pressure/transformation or risk characteristics [e.g. Matei 2015, Tratalos *et al*. 2016]. The most developed, used a multitude of CLI of all the types and related to many spheres [e.g. Vallega 2008, Szűcs *et al*. 2015].

Taking into account diverse types of indicators, the aim of the paper is to applied the CLI categorization scheme composed of qualitative and quantitative indicators referring to six different spheres to assess the quality of seven

lakeside and riverside villages. To this aim, together with widely applied cultural indicators, a set of specific indices related to the waterside was elaborated and tested. The study, therefore, has two goals: the presentation of the CLI categorization applicable to the specific type of hydrogenic landscape and the analysis of quality of selected villages connected to the lake or river.

METHODS

The adopted categorization scheme compose of 18 indicators of both qualitative and quantitative character and referring to six spheres: architectonic, perception, social, political, spatial and economic (Table 1). Among them, two relates to the area of whole village and one only to the lake or river and its development. The selection of indicators was based on following criteria: (1) they have to fulfil principles of an ideal indicator which is reliability, measurability, stability and independence [Sowińska-Świerkosz 2017a, 2017b]; and (2) the availability of data. Depending on the indicator type, different method of data collection were applied. Data necessary to estimate the majority of indicators was collected during the field inventories conducted between 2015 and 2017. During the expert field visits, two researchers assess the state of development of the villages and water areas, the overall state of spatial order, the presence of landscape dominants and landmarks, type of visual connections, the presence of disharmonious objects, state of preservation of monuments and state of waterside space development. Indicators on the quality and importance of public spaces and their popularity among residents are based on semi-structured interviews with local community members. In each village, four to six persons being the key individuals (the grocery saleswoman or the village head) or active individuals representing different age and social groups were questioned. Spatial indicators were elaborated based on the orthompotomap from 2016 of the pixel size 0.25 and then verified in the field. Indicators A1, SO1, SO2, E1, and E2 were based on the data available on the website or obtained via the telephone conservation with the employees of the municipalities.

Table 1. Characteristic of analysed cultural landscape indicators

No	Name	Area	Type	Source	Scale
ARCHITECTONIC					
A1	The number of objects and sites in the municipality and national register of monuments (Number per village)	V	Qn	Register of country monuments; Municipalities registers	Low quality: no monuments; Medium quality: a few monuments; High quality: over a dozen monuments
A2	State of preservation of objects and sites in the municipality and national register of monuments	V	Ql	Field study	Low quality: bad state of preservation; Medium quality: average state of preservation; High quality: good state of preservation
A3	Technical and functional state of elements of lake development (buildings, objects of small architecture)	WA	Ql	Field study	Low quality: bad state of preservation; Medium quality: average state of preservation; High quality: good state of preservation
SPATIAL					
SP1	The presence of historical spatial structures (Percentage of area per village)	V	Qn	GIS analysis Field study	Low quality: lack of historical spatial structures; Medium quality: less than 50% of historical spatial structures; High quality: more than 50% of historical spatial structures
SP2	Share of traditional forms of land use (farm buildings, extensive fields, meadows, lakes and rivers) (Percentage of area per village)	V	Qn	GIS analysis Field study	Low quality: lack of traditional forms of land use; Medium quality: less than 50% of traditional forms of land use; High quality: more than 50% of traditional forms of land use
SP3	Availability of recreational areas (roads and paths along the banks, access to water) (Percentage of the length of the public coastline)	WA	Qn	GIS analysis Field study	Low quality: lack of public coastline; Medium quality: less than 50% of public coastline; High quality: more than 50% of public coastline
SOCIAL					
S01	Number of cultural events (Number per village)	V	Qn	Data from municipalities websites	Low quality: lack of cultural events; Medium quality: less than 5 cultural events; High quality: more than 5 cultural events
S02	Number of social initiatives (social organizations, associations, informal groups (Number per village)	V	Qn	Data from municipalities websites	Low quality: lack of social initiatives; Medium quality: less than 5 social initiatives; High quality: more than 5 social initiatives
S03	The popularity of water areas among the inhabitants (Number of inhabitants which use water areas)	WA		Data from interview	Low quality: a few inhabitants; Medium quality: over a dozen inhabitants; High quality: several dozen inhabitants

VISUAL					
V1	Character of landscape dominants and accents (Type of objects: positive, neutral, negative)	V	Qn Ql	Field study	Low quality: no dominants and accents or of negative character; Medium quality: neutral character; High quality: neutral and positive character
V2	Number of disharmonious elements (billboards, dilapidated buildings, elements of small architectural) (Number per village)	V	Qn	Field study	Low quality: over a dozen of disharmonious elements; Medium quality: a few disharmonious elements; High quality: lack of disharmonious elements
V3	Quality of attractive views on a lake or river from public spaces	WA	Qn Ql	Tourist maps Field study	Low quality; Medium quality; High quality
PERCEPTION					
P1	Perception of the spatial order of the village	V	Qn	Field study Expert assesment	Low quality: low perception; Medium quality: average perception; High quality: high perception
P2	Social assessment of public spaces in rural areas (Number of public spaces of high, medium and small importance)	V	Ql	Information from interwiew	Low quality: public spaces of only low importance; Medium quality: public spaces of medium (also can be low) importance; High quality: public spaces of high (also can be low and medium) importance
P3	Social assessment of the watersheds (Number of public spaces of high, medium and small importance)	WA	Ql	Information from interwiew	Low quality: public spaces of only low importance; Medium quality: public spaces of medium (also can be low) importance; High quality: public spaces of high (also can be low and medium) importance
ECONOMIC					
E1	Number of tourism business entity in villages (including agritourist) (Number per village)	V	Qn	Central Register and Information on Business websites of municipalities	Low quality: lack of public tourism business entity; Medium quality: a few tourism business entity; High quality: over a dozen tourism business entity
E2	Financial expenses on the development of public spaces (2005–2015) (Sum in PLN)	V	Qn	Data from municipalities	Low quality: lack of financial expenses; Medium quality: financial expenses less than 100 000 PLN; High quality: financial expenses more than 100 000 PLN
E3	Economically important areas for tourist reasons (Percentage of village)	WA	Qn	GIS analysis Field study	Low quality: lack of economically important areas; Medium quality: less than 50% of economically important areas; High quality: more than 50% of economically important areas

Abbreviations: V – village; Qn – quantitative; Ql – qualitative

RESULTS

The result showed that the highest cultural quality among analysed villages possess Wola Uhruska features the 64% share of indicators testifying on the high quality. Besides Dratów and Zawieprzyce features the lack of indicator indicating the low quality. The lowest quality possess Grabniak features very low perception and visual values, and only one indicator (E2) testifying on the high quality. Among the lakeside and riverside areas distinguishing Lake Krasne and Bug river in Wola Uhruska featuring the lack of indicator testifying on the low quality and the 50% of those indicating the high values. River Wieprz in Kijany is of the lowest cultural values, as 50% of indicators testifying on the low quality.

Table 2. Results of cultural landscape indicator application

Village/Lake	High quality	Medium quality	Low quality	Total quality
Dratów	A2, SP1, SP2, SO1, V1, P1, P2	A1, V2, SO2, E1, E2	–	High/medium
Grabniak	E2	SP1, SP2, SO1, E1	A1, V1, V2, SO2, P1, P2	Medium/low
Krasne	SP2, E1	A1, A2, SP1, SO2, SO1, V1, P2, E2	V2, P1	medium
Uścimów Stary	SP1, V1, P2, E2	A1, A2, SP2, SO1, SO2, V2, P1	E1	High/medium
Kijany	A1, SP1, SP2, SO1, V1	A2, P1, P2, SO2, E1, E2	V2	High/medium
Zawieprzyce	A1, SP1, SP2, V1, V2, P2	A2, SO1, SO2, E1, E2	–	High/medium
Wola Uhruska	A1, SP1, SO1, SO2, P1, E1, E2	A2, SP2, V1, P2	V2	High/medium
Lake Dratów	A3	SP3, E3	SO3, V3, P3	Medium/low
Lake Rotcze	A3, E3	SP3, SO3,V3, P3		High/medium
Lake Krasne	SP3, V3, E3	A3, SO3, P3		High/medium
Lake Maśluchowskie		SP3, SO3, V3, E3	A3, P3	Medium/low
River Wieprz in Kijany		SP3, V3, E3	A3, SO3, P3	Medium/low
River Wieprz in Zawieprzyce	V3	A3, SP3, E3	SO3, P3	Medium/low
River Bug in Wola Uhruska	A3, SO3, P3	SP3, V3, E3		High/medium

While analysing each indicator type ascribed to villages, several conclusion can be formulated. First of all, they strongly differ among the quality of architectonic (A1), visual (V1, V2) and perception (P1, P2) indicators. It mainly

derives from the different history of each locality resulted in the presence and state of monuments considered as crucial for the overall quality of cultural landscape. Secondly, spatial, social and economic indicators are on the quite similar level which derives from the relatively low degree of anthropogenic transformation, care for public spaces and the poorly developed tourist function.

Lakeside and riverside areas generally differ among each indicator type. It is clearly visible in the case of SO3 and V3 variables which are of both low, medium and high quality dependency on the lake or river. Quite similar is only the E3 variable as all those areas possess the economically important areas for tourist reasons.

Generally, analysed villages as well lakeside and riverside areas can be divided into two categories: of high/medium and medium/low quality of cultural landscape. Villages, except for Grabniak, belong to the first category. Wherein, 60% of the water areas are of medium/low quality. It generally, testified on the higher cultural values of the villages itself than of its parts directly connected to lake or river. It mainly derives from the low degree of tourist infrastructure development resulted in low quality of aesthetic and perception indicators, except for Bug river in Wola Uhruska.

DISSCUSION

The study allowed to testified the authors set of cultural indicators developed to assess the quality of lakeside and riverside villages. The set occurred to be sufficient to reflect the multitude of factors affecting the cultural layer of this specific type of area. Besides, used indicators fulfilled all the criteria posed to any ideal indicator [Sowińska-Świerkosz 2017a, 2017b].

The study showed that the analysed lakeside and riverside villages feature the low share of monuments, as it is always was a poor and periphery located area. However, it has its own tradition and cultural identity reflected by the high values of spatial indicators related to historical spatial structure and land use. The preservation and continuity of those values are necessary to improve the cultural attractiveness of analysed region. Such actions are not sufficient as visual and perception indicators are generally of low quality. It is testified by other works related to the spatial development of the Łęczyńsko-Włodawskie Lakeland [Krukowska and Świeca 2008]. The lakeside areas are characterised by the poor accessibility and poor spatial development and consequently by the low use by the inhabitants. Visual attractiveness of analysed areas is on very diverse level. Importantly, there are villages featuring the proper care of aesthetic aspect. This was also shown by other research conducted in this region [Soszyński *et al.* 2016]. Unfortunately, usually the villages, both taking into account visual and spatial aspects, are very poorly linked to the water space. The better develop-

ment of such relation could increase the aesthetic values of villages and water areas and contribute to their cultural and touristic attractiveness. Generally, this is the proper use, not the amount of financial expenses, which is a problem. Project undertaken in the space should take into account the local cultural resources and spatial conditions.

CONCLUSIONS

1. The study allowed to testified the authors set of cultural indicators developed to assess the quality of lakeside and riverside villages.
2. Among the analysed areas, villages generally are of higher quality of cultural landscape than lakeside and riverside areas.
3. The highest quality of cultural values possess the village Wola Uhruska and Lake Krasne and Bug river in Wola Uhruska featuring the lack of indicator testifying on the low quality.
4. The lowest quality of cultural values possess Grabniak and river Wieprz in Kijany of 50% share of indicators testifying on the low quality.

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KULTUROWE WSKAŹNIKI KRAJOBRAZOWE NADJEZIORNYCH I NADRZECZNYCH MIEJSCOWOŚCI POJEZIERZA ŁĘCZYŃSKO-WŁODAWSKIEGO

Strzeszczenie. Kulturowe wskaźniki krajobrazowe stanowią ilościowe i jakościowe miary odnoszące się do różnorodnych cech środowiska, w tym materialnego i niematerialnego dziedzictwa kulturowego oraz fizjonomii krajobrazu. Wskaźniki te, mogą być analizowane w odniesieniu do architektonicznych, przestrzennych, socjalnych, wizualnych i związanych z percepcją oraz ekonomicznych aspektów. Niniejszy artykuł ma na celu określenie takiego rozbudowanego zestawu wskaźników w odniesieniu do 7 miejscowości położonych na Pojezierzu Łęczyńsko-Włodawskim. Cechą wspólną analizowanych przestrzeni jest ich silny związek z jeziorem lub rzeką, który został podkreślony zastosowaniem specyficznych wskaźników odnoszących się do cech przestrzeni nadwodnych. W rezultacie dla każdej miejscowości określonych zostało 18 wskaźników. Wyniki analiz pokazały, że najwyższa jakość krajobrazu kulturowego cechuje miejscowość Wola Uhruska oraz Jezioro Krasne i rzekę Bug w Woli Uhruskiej. Najniższą jakość mają natomiast miejscowość Grabniak oraz rzeka Wieprz w Kijanach. Wykazano również, że miejscowości odznaczają się wyższą jakością krajobrazu kulturowego niż przestrzenie nadwodne z nimi związane.

Słowa kluczowe: wskaźniki kulturowe, wskaźniki krajobrazowe, obszary nadjeziorne, obszary nadrzeczne, Pojezierze Łęczyńsko-Włodawskie