THE METHOD OF LANDSCAPE IDENTITY ASSESSMENT

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Abstract

The theme of landscape identity becomes actualized beside with the impact of globalization. Landscape identity is closely linked to the Latvian national identity. The concept of identity is multifaceted and touches on a number of scientific areas that currently in Latvia are actively investigating this phenomenon. Landscape investigators admit the multidisciplinary structure of the concept of identity, including in their researches the investigations of historical, visual and associative aspects. Landscape identity is related to detection, identification and definition of landscape elements, because landscape elements are the key to the perception of identity. The method of landscape identity assessment is based on three stages: the assessment of the historic, visual and cognitive elements in formation of landscape identity. The assessment of historic elements in formation of landscape identity is associated with the investigation of historic materials and description of structural elements according to the stages of development. The assessment of visual structural elements of landscape identity is based on the material collected during the field work by filling in the landscape assessment matrix. The assessment of cognitive structural elements of landscape identity is based on the opinion survey, which makes it possible to find out the concealed associative identity. The information obtained in all stages of landscape identity assessment forms the landscape identity model. The aim of the research is to develop the method of landscape identity assessment. The research was carried out at Latvia University of Agriculture in 2010.

Key words: landscape identity, landscape elements, visual elements, historical elements, cognitive elements.

Introduction

The research of Latvian identity after regaining the national independence in Latvia has become very popular among investigators. It is recognized that no country can exist without its own identity, which covers the traditions, the heritage, the language and the environment, as well as the inner world of each individual and the country as a whole. Under the influence of globalization the problem of identity has become more urgent because self–realization is today's actuality, which helps to be distinguished and not to lose oneself at each individual's level, as well as at national level. Globalization is a global phenomenon. For this reason it is impossible to define it, to determine the expression of its form or content (Hanovs, 2008). There is no doubt that globalization embraces and transforms everything – from each person's inner world and ending with the physical changes we really see when we look at a landscape. Different understanding of the concept of identity is the reason for various approaches to scientific research. As noted by Sergey Kruki (2004), referring to the Polish Rikeru – there are two aspects of identity, which often are mutually mixed. Oneness (*memete*) is a self-similarity in the course of time, self (*ipseite*) is a separation of self from each other (Kruks, 2004). The origin of the word has Latin roots – *identificare, identifico* – to identify, means the object co–relativity with self and in close connection with the ongoing variability of self, proving the independent existence of self and separation of self from other persons (Новейший..., 2003). On the other hand, the other word used in Latin is – *identificus* – meaning identity, absolute matching or coincidence of two objects. Currently, the Latvian identity is mostly investigated from sociological, philosophical, political, linguistic and pedagogical aspects. One should point out the research on pedagogical aspects, performed by Māra Dirba (2003), where in relation to the identity assessment process the author deals with a layered structure, which concerns also Latvian identity – ethnic, national, supranational (Latvian and / or minorities, Latvian, European and global) (Dirba, 2003). We can find similar patterns in modeling landscape identity, where a single element of landscape fits into a definite landscape space, which in its turn fits into the type of the landscape, region and further – into the image of Latvia. In sociology, researches on identity include its symbolic expression, for example, symbols, habits and rituals may help to identify the nation from the outside, as well as identify it innerly (Kurks, 2004). The symbolic meaning of separate landscape elements is certainly a constituent part of landscape identity, which is of most importance when defining the identity of a specific place, as the above mentioned symbolic landscape elements will have a major impact on human and visual and cognitive perception. The existences of such objects and the possibility to use them in economy have been widely discussed in connection with the brand site, which is most often used in connection with the concept of regional identity (Петров, 2008; Гончарик, 2011). Exploration of regional identity is impossible without a historic and cultural exploration of the specific place, which coincides well with the stages of landscape identity assessment, where a historic and cultural exploration explains the existence and location of landscape structures, individual landscape elements and their groups, as well as sequentially reflects all man's relationship with nature. Researches on landscape identity are based on the regional exploration of transformation processes, as well

as the effects of urbanization of sense of place on the landscape identity (Carter et al., 2007; Stedman, 2003). Landscape investigators note the multidisciplinary and multidimensional structure of the concept of identity, where the importance of landscape social and nature is closely connected with level of perception, and their role in human daily activities (Massey, 1995). On the other hand, landscape investigators assess public identity as the source of landscape changes, by using the method of photo–elicitation and interviewing (Stewart et al., 2004). Landscape investigators note the importance of political and economic processes in the changes of landscape identity. Landscape identity is also influenced by the mutual relationships of social and ethnic groups. Landscape investigators for describing historical events use a matrix, where they describe the stages of the development in the context of political and economic systems, the dominant ethnic and social groups, functional changes, the appearance of new symbols in the landscape (Murzyn–Kupisz and Gwosdz, 2011). The assessment of historic structural elements of landscape identity is based on a comprehensive study of a history of the place – from the beginning of landscape formation, where morphological and climatic factors are of great importance, and finally to the place of each man–made elements, where the changes of landscape structure and the changes of individual elements of the landscape is the a result of human activities, reflecting the country's political, social and economic situation. Landscape identity is a multidisciplinary concept, because it is used by politicians, history scholars, geographers, architects, as well as by landscape architects. The concept of identity is tightly related to the definition of landscape, where the landscape is an objective reality, section of the land surface, encompassed by natural components and formations, as well as the combination of man–made elements (Ramans, 1967). The development of Latvian landscape identity includes a close interconnection between natural, social, political and emotional factors, which by continuous interactions form the image of Latvian landscape. It is not possible to exclude any of several influencing factors, so it must be recognized that in order to define and assess the landscape it is necessary to reflect the multifaceted landscape structure. Many landscape investigators point out that landscape is the product containing natural and human elements that continuously changes due to natural processes and human activities. It can be concluded that the identity of the landscape is changing. This means that perception and definition of landscape will be binding only for a specified period. This highlights the need to create a unified landscape detection method, which will be useful for future research and will help to compare results over time, perceiving the landscape identity as a model. The use of theoretical models in landscape investigations is a new research direction that makes it easier to perceive the existing links and processes concerning landscape and see the consequences of individual actions (Stephenson, 2008; Krause, 2001). Consequently, the aim of the research is to develop the method of landscape identity assessment which is based on a multidisciplinary approach, by performing expert surveys concerning various scientific disciplines, as well as population surveys.

Materials and Methods

The chosen research object is the theoretical model of the research of Latvian landscape identity as the aim of the research is to create the method of landscape identity assessment, which is to be used for future research on landscape identity assessment concerning the coastal landscape of the Baltic Sea and the Gulf of Riga. The research was carried out at Latvia University of Agriculture in 2010.

Assessment of landscape identity is closely related to detection, identification and definition of landscape formation elements, because landscape elements are the key to the perception of identity and they play one of the decisive roles in formation of landscape identity. Being based on the structure of identity multidisciplinary research, the landscape formation elements are divided into three groups: visual (preserved natural and man–made elements or parts thereof), historical (once existing, disappeared or destroyed natural and man–made features), and cognitive (human memory and associations, traditions, symbols, experiences, adventures, etc.). The method of landscape identity assessment is based on the sequential research and determination of landscape formation elements of each group, combining cartographical and descriptive methods and approaches using them for each stage of the landscape research sphere.

In assessing historic formation elements of landscape identity, the following stages should be distinguished.

1. Defining historic development stages. According to the available data on the transformation processes and events of landscape development, separate stages are defined, where the content of the event, action or process and their consequences – changes in the landscape – are described. Here, it is important to assess whether the former events can still be seen in the landscape as individual elements or as landscape structure. For representation of historical data, a historic landscape development matrix is used in which the events and changes in the landscape are described by the following points: historical development period and the appropriate actions, events, processes and corresponding changes in the landscape, landscape elements, which have completely disappeared, current landscape elements or landscape structure, which are wholly or partially preserved (Table 1).

2. The research on spatial development is based on the comparison of cartographic and photo material of different time periods (Van Eetvelde and Antrop, 2009). It is important to mark the landscape elements of the long–term existence as a specific place name or the specific structure (Carter et al., 2007). Cartographic material research is attached to the landscape historical development matrix, including in the matrix the obtained data during the

investigation of cartographic materials in correspondence with the development stages. Most often these elements form the core of the landscape identity.

The landscape historic formation elements which were determined at the end of the first stage shall be divided into two groups: fully or partially preserved, and completely disappeared. The completely disappeared landscape elements or landscape structure should be included in the associative part of population surveys, in order to determine whether these landscape elements form the identity of the invisible (which is not less important) cognitive aspect of landscape. Fully or partially preserved landscape elements should be incorporated into the research sphere of visual landscape forming elements when performing the field research and estimating the value of the visual.

Assessment of visual formation elements of landscape identity. The investigation of visual formation elements of landscape is one of the stages of assessment of landscape identity. In landscape investigations for visual landscape assessment the following criteria should be used: the visual availability, scale, naturalism, type of use, diversity, and coordination (Ode et al., 2008).

Assessment of visual formation elements of landscape identity includes the following stages:

1. Field research. The obtaining of the required data for the assessment of visual formation elements of landscape is performed in nature by the analysis of individual landscape space according to pre–prepared assessment matrices. By field research the coordinates of the point of view are identified, location is marked on a map, a spatial sketch is drawn, a short description of landscape is presented, including key words. Landscape assessment is divided into two parts: assessment of the common subjective visual landscape and assessment of the dominant landscape elements. For subjective assessment of the landscape the following parameters should be observed: the visual availability, scale, topography, color, material, texture, variety, rarity, sensation, movement, naturalism. The predominant landscape elements are divided into the following groups: construction, individual architectural elements, roads, land surface, land surface overgrow, hydrology.

2. Data processing and analysis of results. A field survey is the basis for the identification of typical and unique landscape elements and landscape structures. The data are collected and processed in the SPSS environment. The measurement for aggregated data – their nominal value. All matrix questions are of closed question type. For the questions which have only one response option, the data are coded and marked with numbers. But for the questions which have several response options, a dichotomous analytical method is used – each response option provides a separate variable with a column, option codes: 1 – there is an answer, 0 – no answer. For the analysis of the results, both primary and secondary data analysis are used. Primary data analysis – empirical distribution – shows the feature under investigation at a repetition rate – the number of times the version is found in the study. Secondary data analysis – analysis of contingency – determines whether there are correlations between the presence of different nominal data. The data are summarized in Table rXc, where r is the number of rows, but c is the number of columns. Set the significance level of 5% error probability (confidence level 95%). For decision making X2 and Kramer's coefficient are used. The collected data are used for drawing up expert survey questionnaires and population survey questionnaires.

Assessment of cognitive formation elements of landscape identity

The multi–dimensional nature of the concept of identity makes it necessary to include the investigation of cognitive formation elements of landscape identity in the method of landscape identity assessment (Bell, 2009). Assessment of cognitive formation elements of landscape identity can be implemented only with the help of the public and expert surveys, and it includes the following stages:

1. Questionnaires Preparation. It is based on the two previous stages of the investigation. The potential formation elements of landscape identity (revealed during the research on historical materials) which split into two groups. The disappeared landscape elements that can be still remained in people's memories, which can be clarified by the questionnaire. The preparation of questions without images takes place. Historical landscape elements are assembled according to the functional groups, where the corresponding elements are marked in descending order. The second group of questions consists of issues with landscape imagery where the respondent shall mark the most relevant elements of the identity in descending order – they are totally or partially preserved landscape elements, which have been surveyed in nature by performing the assessment of visual formation elements of landscape identity. There is also a separate group of questions, the aim of which is to clarify the associative aspect of landscape identity what it is not possible to be determined by the stages of assessment of historic and visual formation elements – people's memories, traditions, songs, beliefs, etc.

2. Data processing and analysis of results. Questionnaire data are collected and processed in the SPSS environment – is the same method like in visual formation elements part.

Results and Discussion

The end result of the method of landscape identity assessment is a landscape model of identity that reflects the multidisciplinary approach to the research and includes the tripartite nature of identity – investigation of historic, visual and cognitive formation elements of landscape identity. Sequential appliance of the method is of great importance, as the obtained data and results of each stage are included in the following stage, reaching up to the formation of landscape identity model. The research feedback shall be provided by reviewing historical development, by comparison of the results of visual research and surveys, and for the conclusion using the landscape identity model.

The results of assessment of historic formation elements of landscape identity are combined in the historic landscape development matrix in which landscape elements are arranged by the time periods, changes in the landscape during these periods are defined, and finally the nowadays image of the landscape and the importance of historic landscape elements in it are defined. In addition to theoretical investigations, spatial landscape development is also performed. Availability of qualitative cartographic material during the research on landscape could be considered as a great success as without it investigation of spatial development is difficult to be performed. Cartographic material research is the basis for defining landscape historic structures and their development, making it possible to get information about shape, size, location and reachability of landscape elements. Landscape investigators and geographers admit the importance of historical aspect in their landscape investigations, as well as the importance of the investigation of landscape structure variability in the historic aspect, being one of the first exploration stages (Nikodemus and Rasa, 2005). In recent landscape investigations, are new concepts such as landscape biography, landscape of place, reading the landscape, continuity of landscape development (Zariņa, 2010).

Table 1

Historic development stages

Historic landscape development			Landscape nowadays	
time period	actions, events, processes, etc.	landscape changes	completely or partially disappeared landscape elements or landscape structure	remaining landscape elements or landscape structure
1. Events or natural processes arising from natural factors				
2. Events or natural processes arising from anthropogenic factors				

On the basis of assessment of visual formation elements of landscape identity, the survey results matrices have been obtained. The data processing shows the typical landscape features and elements, as well as the unique landscape features and elements. A visual field survey is based on landscape characterization, by using visual perception criteria. Characterization of landscape image is partly a subjective assessment, because it is based on the associative perception criteria. Within the framework of the method of landscape identity assessment, eleven criteria specifying the landscape visual image have been established. Each of criteria is divided in several subpoints.

Table 2

Visual perception characterization

Visual perception criteria	Characterization of criteria
Visual availability	unavailable, a narrow, limited, partly accessible, open, fully accessible
Scale	intimate, close, small, medium, large, wide
Relief	smooth, flat with some hills, gently wavy, hilly, dunes, hill, cliff, steep slope, valley, gully, gorge
Color	neutral, monochrome, nuanced, vivid, colorful, checkered, with some bright elements
Materials	natural landscape, wood, stone, plaster, concrete, bricks, glass, metal, synthetic materials, other materials
Texture	smooth, soft, fine, rough, sharp, fragmented
Diversity	uniform, easy, different, complex
Rarity	normal, typical, unique, rare, unique
Movement	dead, quiet, lively, uproarious
Naturalism	natural, natural with some man–made elements, anthropogenic environment with some natural elements, an urban
Senses	boring, neutral, pleasant, safe, calming, interesting, inspiring, provocative, intrusive, unpleasant, unsafe

The specifying elements of visual accessibility are: landscape location, length of landscape line, and landscape width. Not less important are relief forms, which directly affect the view and the visibility and landscape diversity (Fisher, 1996). Of great importance are the features of visual perception, which characterizes spatial environmental

uniqueness (Ziemeļniece, 1998). As a characterizing value we perceive the landscape scale. Each of the scales of perception includes its own regularities, its own ways of expression, possibilities to investigate and to use investigation results (Melluma and Leinerte, 1992; Krause, 2001). The change of the perception scale causes the change of the number of details and elements that feature the landscape identity (Forest landscape…, 1989). Visual perception criteria are also color, texture, and landscape materials. These criteria, in relation to man–made elements, reflect to a great extent the manifestations of traditions in the landscape and are the forms of aesthetics of physical manifestations (Ode et al., 2008). Other visual landscape specifying values are: landscape naturalness, diversity, and rarity. Landscape diversity is often emphasized as the visual quality indicator (Nikodemus and Rasa, 2005). Diversity is distinguished by two groups – the structural diversity and diversity of landscape elements. The emotional factor – feelings – is also important for creating a common image. Feelings can range from boring to inspiring and unsafe (Landscape character…, 2002). The survey matrix of landscape visual image includes the combination of visual landscape assessment criteria which are introduced by several authors to make these criteria be adapted to Latvian conditions.

A visual investigation of the landscape also includes the matrix of identification of landscape elements, where landscape elements are divided into six groups and subpoints indicating the most common landscape elements (Landscape character…, 2002) (Table 3).

Table 3

Dominating landscape elements characterization

Groups of landscape elements	Dominating landscape elements
Construction	ruins, separate buildings, farms, construction groups, locality, village, suburb, small town, residential neighborhoods, a city's built heritage, industrial buildings, military construction, port, railway station, other buildings, no building
Individual architectural elements	poles, electricity and other forms of communication towers, fences, walls, support walls, monuments, bridge, dock, observation tower, a lighthouse, wind generators, other elements, no element
Roads	trampled down paths, crisp surface pedestrian trail, a hard surface pedestrian trail, footbridge, earth road, loose surface road, hard surface road, highway, railway, other roads, no road
Land surface	rocky bank, sandy bank, coastal grassland, bogged up area, moss, agricultural land, lawn, meadow, loose surfaces – playgrounds, solid surfaces – playgrounds, other types of land surface
Earth Surface overgrow Greenery	grass clusters, individual shrubs, bushes groups, individual trees, tree clusters, groves, forests, allotment, alleys, squares, parks, gardens, orchards, buffer plantings, other greenery, no greenery
Water elements	marsh, ditch, stream, river, pond, lake, quarry, swimming pool, water, sea, other water elements, no water element

Construction character, intensity and stylistics determine the culture–historical kernel of identity, which represents particular human activities in space. Construction is characterized not only by individual architectural elements and their groups, but also by landscape structure (Briņķis and Buka, 2008). The individual elements of the architecture can include a functional load, as well as symbolic and aesthetic elements. Symbolic elements are often a key to the identity of the landscape that are most exposed to both visual and cognitive level. Roads in the landscape are defined as a view point range. Type of road and cover clearly defines its workload and level of use. Land surface is the landscape background, which may be very typical of a particular landscape or area unique. Land surface provides information on the way the land is used, which is also one of the landscape characterizing values (Nassauer, 1997; Nikodemus and Rasa, 2005). Here it is important to note the historical or traditional land usage types, looking for link with the present day. Plants which cover the land surface are one of the landscape elements, which possess a strong seasonality, so that its evaluation is dependent on the seasons. Plants are the indicators, which points to the naturalness of the landscape, climatic conditions, specific locations and the traditions of landscape architecture. Water elements in the landscape are often the landscape diversity factor, which attracts not only plant and animal community, but also people's attention and desire to be near water. The predominant landscape identity formation element helps to determine the type of landscape, and is the basis for drawing up a questionnaire.

The importance of subjective perception is emphasized in defining the landscape itself. The definition of landscape used by European Landscape Convention is: 'An area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors' (European…, 2000). So, the definition of landscape includes not only the natural and human interactions, but also human perception and its importance. However, subjective

perception of the landscape by each individual shall be taken into account. The importance of population surveys is highly evaluated by many landscape investigators who include in their researches landscape associative perception (Bell, 2009). Investigation of cognitive formation elements of landscape identity are corresponding to researches on the regional identity and sociology studies, where the importance of associative symbols, an individual's memory and self–awareness, traditions, folklore and cultural contexts is great (Петров, 2008; Гончарик, 2011). The results of population surveys and expert surveys reflect the concealed part of the landscape identity and reveal cognitive formation elements of landscape identity. The groups and the structure of questions are arranged with the aim to provide the corresponding thematic order of the questions that would help respondents to understand the aim of the questionnaire and not to get confused when giving answers to various kinds of questions.

The result of the questionnaire is the determination of the groups of cognitive and visual formation elements of landscape identity. The questionnaire is developed in different blocks – a group of questions without pictures in order to find out people's memories, feelings and images of the subconscious landscape that are cognitive formation elements of landscape identity; and a group of questions with pictures in order to find out visual formation elements of landscape identity. The expert survey has been compiled by analogy, but the resulting data were analyzed separately to compare the results.

Conclusions

The method of landscape identity assessment which is based on multidisciplinary approach has been worked out. The method can be used in landscape research with the aim to define the identity of the landscape and to create a specific landscape identity model. The method of landscape identity assessment is considered to be universal and to be used in various landscapes of Latvia. The groups of the main formation elements reflect the tripartite nature of the landscape identity and characterize the landscape identity from different angles, including historical, visual and cognitive landscape perception research in one method. The methodology and the criteria provide observation of common principles in various Latvian landscape researches. Consequently, it is possible to analyze the landscape identity in the course of time. The drawback of this method is unpredictable results of the survey, which is influenced by several factors – from the weather conditions to the economic situation in general. The results may also be affected by the respondent's mood at the time of completion of the questionnaire, as part of the questionnaire focuses on the associative perception, which is variable and difficult to be described. Another drawback – associative responses – cannot always be successfully grouped for further processing. Consequently, a repeated data collection is of great importance. The method of landscape identity assessment can be used to monitor the changes of landscape identity. The results obtained can be used for working out the guidelines for the landscape design and development. Further research is related to the approbation of the method of landscape identity assessment for assessing coastal landscape identity of the Baltic Sea and the Gulf of Riga and working out landscape identity model.

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