Landscape Evaluation and Public Preferences: Is there Room for Optimisation?

Sonja BUTULA (✉)

Summary

The need for information on landscape value preferences (that are disclosed by public survey) in conservation activities within spatial planning have been recognised long ago. The paper focuses in general on that topic, specifically highlighting the importance of diverse conservation criteria that promote the idea of effective implementation of public participation in the earliest stage of the planning process - the analytical phase of landscape evaluation.

The environmental qualities that the landscape planner should take into account include unpolluted landscape as human habitat, productivity of natural resources and the naturalness of ecosystem. The public survey and support tools (statistical analysis and vulnerability modelling) were used as methods for revealing landscape value preferences of three social groups: local inhabitants, experts (people directly involved in a land use planning process) and potential users of a space. The results have shown that conservation goals or desired future state of a landscape considerably differs between and within respondent groups. This also makes it possible to look for an acceptable compromise between the three distinctive conservational requests, thus allowing optimisation of a land use decision.

Key words

landscape, values, landscape planning, protection, public participation

University of Zagreb, Faculty of Agriculture, Department of Landscape Architecture
Svetošimunska 25, 10000 Zagreb, Croatia
✉ e-mail: butula@agr.hr

Received: July 18, 2007 | Accepted: November 20, 2007

ACKNOWLEDGEMENTS
The results presented have emerged from the scientific project "Landscape Qualities Protection within the Rural Development Policy of Croatia", realized with the support of Ministry of Science, Education and Sport of the Republic of Croatia.

Introduction

The task of landscape planning is to provide suitable solutions for conservational problems that are then integrated into the result of the land use planning process - land use plan.

The elaboration of suitable solutions of conservation within land use plan or an environmentally sound allocation of different human activities is, according to Marusic (2002, p.81), the most uncertain landscape planning activity. Uncertainty is caused by a lack of different types of expert knowledge, necessary but unavailable during all stages of a planning process, by subjectivity in value assessments as well as by the uncertainty inherent to the process that addresses the future.

These problems have been acknowledged, for instance, at the level of environmental and planning policy making, (European Commission, 2001). Also, the Council of Europe (2000) is calling for public participation in the process of spatial decision making. But at the level of planning disciplines there is still open debate about the appropriate concept of conservation activities within planning (Buchecker et al., 2003; Marusic, 1996). Moreover, there are some disputes about the role of public involvement into evaluative phases of landscape planning. Pogacnik (1979), for instance, argues the efficiency of such an approach because of unstable preferences: same people express different value preferences for the same environment depending on the role or position they might hold. The paper focuses on the need to hold in check subjectivity in conservation value assessments and the public participation role in it, regarding central planning question as posed by Davies (2001, p.78): "whose values were respected and how they come to count in the planning process?" One opinion in the environmental planning practice is that value conflicts should be dealt with at the beginning of a planning process by the development of alternative solutions, which in turn could provide optimised land use decision (Johanessen et al., 1998; Marusic, 1993). The prerequisite for viable alternative development is information on current values in society or people themselves (Kasemir et al., 2003). As many other social values, general conservation goal is expressed as ideal, but the main question in the planning context is how much or to what extent they are idealized? The typical example of such value conflict might be illustrated with a spatial situation where direct or outright protection coincides with developmental proposals. The limits of expert knowledge and subjectivity in their value assessment are becoming evident in such a situation, because divergent social conservational interests in landscape remained undefined. Value assessment or evaluation phase in this case was solely based on usual expert criteria that are followed in nature conservation: rarity, typicality, uniqueness and importance of natural phenomena that are all presumably based on hard facts; scientifically derived data. Unfortunately, such an assertion from professional point of view is seldom present, including temporal and financial frame restrictions posed on planning activity. The relationship between science and planning is nowadays coming into focus from different perspectives. Two perspectives are considered in particular. First is O'Riordan's (1995) claim that science, among other things, should be an interpreter of scientific data according to various parameters of political and ethical norms and should extend the power to those who are not always recognised as being important. Second is Taylor's (1986) line of reasoning which is perceived to be the key in understanding the differences between the roles of natural sciences (ecology in particular) and conservational or environmental planning. He advocates the distinction between facts and values, where latter should be considered as a guideline in the search for our relation to nature, among various options that open to our choice.

The research discussed in this paper explores the attitude of various social groups to landscape values. This paper presents a part of a comprehensive study, aiming here to reveal differences between and within three different social groups in relation to the landscape quality dimensions: landscape as a living environment, landscape as natural resource and landscape as palimpsest of Nature.

The study was undertaken in the rural area of the Mura River mouth into the Drava River in northern Croatia. Due to the relatively natural condition of the structure of the rivers sections for the study site (both longitudinal and in cross section), its adjacent landscape might be characterised as close to natural riparian landscape. Such characterisation comes from the fact that river beds, especially of the Mura river didn't undergo any regulation or canalization activities that have major impact on natural processes and structure when fluvial system is concerned.

Social groups chosen in this research are permanent users of the area (local population) and potential users (experts and urban population). Such social stratification was based on the assumption that the attitude of man towards nature and consequently the landscape values resulting from that attitude are not determined by intrinsic or inherent qualities of the landscape but by social interest in a particular landscape. The general social interest in landscape/environmental protection is articulated according to Marusic's (1996) theoretical framework into: interest to protect and enhance landscape as living environment, interest to keep productivity of natural resources (sustainable use) and interest to preserve naturalness of an ecosystem.

Methodology

The public survey was carried in 2002. The data was collected through a questionnaire and the pool was conducted by a researcher in person. The structure of the questionnaire was based on non-visual material (first section) and visual material or photo questionnaire (ranking of the state of the landscape naturalness by photo simulation), in second section. Both sections were treated as dependent variables. The third section consisted of sociodemographic questions as well as those on preferences regarding leisure and the importance of life values. These questions were used as independent variables in some statistical analyses. The survey involved sample of 117 respondents, N=63 in local population group, N=53 in expert group and N=61 in group of urban population.

The content of the first section of the questionnaire that is relevant for this paper included two different Likert type attitude scales towards landscape value preferences in quality dimensions (1) landscape as living environment and (2) landscape as natural resource.

The scale for assessing attitudes towards the first quality dimension contained 15 items that were empirically categorised into three categories. First category represented the quality of unpolluted living environment (deriving both from cultural and natural structure) and consisted of seven items: clean air, absence of noise, good water quality, fertile land, naturalness of an area, traditional architecture and visual qualities. The second category defined was that of infrastructure and service availability in a particular area. This category consisted of five items representing the existence of: traffic, health, educational, commercial and public communal infrastructure. Finally, the third quality category defined was that of social origin. They were represented by three items: family and friendship ties, neighbourhood ties and social ties that might take place while visiting cinema, theatre or concerts.

The scale for assessing attitudes towards suitable use of a landscape as riparian natural resource contained four items representing land uses typical for rivers and its valleys: watercourse designated as waterway, water potential used for hydro energetic purpose, recreational sites and areas designated as protection reserves. The items in both scales were rated on a five point scale (1-strongly disagree to 5-strongly agree).

The attitudes towards third quality dimension – naturalness or primordial state of a landscape were assessed by closed type question, where 1 meant that participant agrees that particular natural process should not be allowed; 2 – agreement that a process should be allowed; 3- no opinion for human intervention in a particular process. The examined were six natural processes that characterise aquatic and/or terrestrial fluvial ecosystem: flooding, bank erosion, riverbank overgrow, water level fluctuation and material transportation in a riverbed.

The significance of differences in evaluation between (one way ANOVA analysis, X^2 test) and within (Dunnet T3 test) tested groups was analysed.

Results

The survey results of landscape quality dimension - living environment showed that all three respondent groups gave relatively highest score to clean air, quality water, naturalness of an area and the aesthetic qualities of environment (Figure 1).

There were only two significant differences found between groups. One concerned the fertile soil or, indirectly, the inclination towards agriculture – local population recognized it as a factor that contributes to a higher quality of life, as opposed to urban population, (M_L=4.778, M_E=4.607, p=0.012). The second indicated that the locals

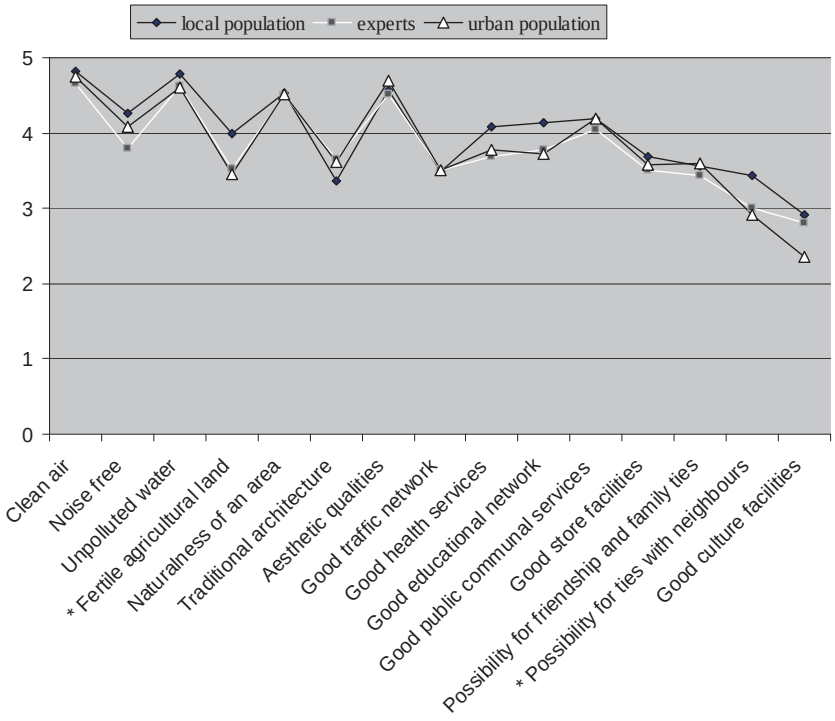

Figure 1. Questionnaire response - If you live near a river or you might live there, how important for you would be the following?

Table 1. Landscape quality dimension- living environment, preference comparison within respondent groups

	Qualities appreciated more than naturalness*	Same as naturalness	Qualities appreciated less than naturalness**
Local population	Clean air Good quality tap water	Noise free Aesthetic of place	Fertile land Traditional architecture Good services (traffic, education, commerce, health) and infrastructure Ties with friends, relatives, and neighbours
Experts	–	Clean air Good quality tap water Aesthetic of place	Noise free Fertile land Traditional architecture Good services (traffic, education, commerce, health) and infrastructure Ties with friends, relatives, and neighbours
Urban population	Clean air	Good quality tap water Aesthetic of place Communal infrastructure	Noise free Fertile land Traditional architecture Good services (traffic, education, commerce, health) Ties with friends, relatives, and neighbours

*p≤0.05; **p≤0.01

appreciated closely-knit neighbourhood more than experts did, (M_L=3.444, M_E=3, p=0.043).

Since the degree of landscape naturalness was the basic dependent variable on which the photo questionnaire was based, the perception of residential qualities was analysed in respondent groups through that quality element. The results (see Table 1) indicate heterogeneousness of preferences received in respondent groups regarding naturalness in relation to other quality elements. Local population regards clean air and pure drinking water significantly more important than naturalness in their environment. Experts do not differentiate between residential qualities analysed, and urban population perceive only clean air as significantly more important residential quality than naturalness.

The results of survey concerning the quality of rivers as exploitation resources show marked preference in all three respondent groups for the type of land use implying low degree of antropogenisation in space organisation (natural reserves and recreational use) as opposed to land use which requires high degree of antropogenisation (waterways, hydroenergetics), see Figure 2.

Local population evaluate significantly less the use of river for the hydro energy purposes than do experts and urban population (M_L=1.54, M_E=2.02, p=0.015; M_L=1.54, M_U=2.28, p=0.000). On the other hand, the type of land use - bioreserve is less favoured by experts than it is by locals and urban population (M_E=4.27, M_L=4.74, p=0.007; M_E=1.54, M_U=4.64, p=0.044).

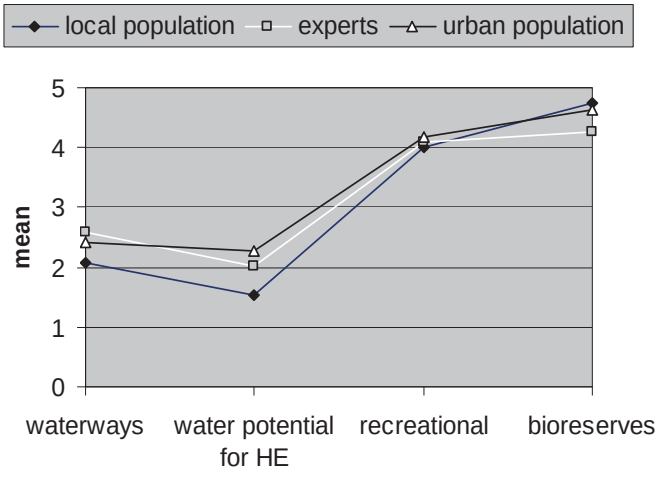

Figure 2. Landscape quality dimension- natural resource, preferred land use of riparian potentials

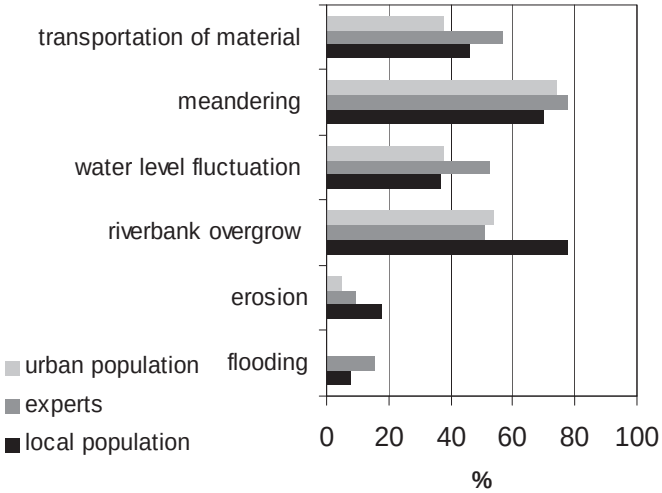

Figure 3. Frequency of positive response to interference in natural processes of fluvial ecosystem

Results of survey concerning the quality of rivers as palimpsest of nature (Figure 3) indicate extremely negative attitude towards that kind of natural processes of river ecosystems (floods and bank erosion) which can directly and indirectly harm man or his property. Opposed to that, the meandering of streams and growth of high vegetation on the banks are processes regarded as desirable by all three respondent groups.

The data obtained for the processes of water level fluctuation and material transportation indicate that all three respondent groups are relatively undecided in the attitude towards should humans intervene or not in that processes. Moreover, for the water level fluctuation no opinion response was given by 24% locals, 19% of experts and 33% of urban population; as similarly for the process of material transportation (22% of locals, 17% of experts and 31% of urban population).

From the all six processes, the only differences found between respondent groups were that for flooding and riverbank overgrowth. The groups significantly differ in opinion that flooding should not be allowed (χ^2=16.887, p=0.01), and to this determined difference contributes most the group having opinion that flood should not be allowed. Also, the groups differ in the attitudes towards the riverbank overgrowth and to that difference contributes mostly the group which advocate that river banks should be freely left to vegetation overgrowth (χ^2=17.667, p=0.007).

Conclusions

Only part of the results of the research project described was possible to present in this paper. However, there is strong evidence that different people have different perceptions of what they consider valuable or how values are attached to a landscape. Such information is indispensable for a planner involved in environmental planning, because without it he/she cannot realistically formulate the conservation goal or check for possibilities to fulfil each interest in the course of anticipated landscape change. This is of paramount importance in planning practice, because in order to reject or approve changes in environment, the meaning or value should be attached to each act of that change. Such a decision inevitably involves or rests on certain interest or desired future state of a landscape. Previous studies of identification of stakeholders interests in landscape, especially those focused on the local planning scale (Bohnet, 2002; Golobic, 2002) have shown the advantages of communicative approach vs. technocratic (prevailingly hard facts and expert knowledge) approach to environmentally sound spatial decision making.

From the methodological point of view, there is a need for a shift in the paradigm from the linear rational planning process that was given by Lyle (1985).

Such new planning paradigm complicates previous straightforward way of problem solving process, among others, because of a need for feedback information (Steinitz, 1990). Moreover, the recognition of feedback information within landscape evaluation phase opens the possibility of a dialog between the space users and planning experts in optimisation of decisions regarding land use. Solutions of spatial environmental problems, if defined specifically, can not be achieved by intuitive process and be based exclusively on the planners' expertise and their moral authority (Butula 2003).

Planning for sustainable development, although some relegate the concept, is believed to be achievable if based on accurate and specific problem definition. The environmental problems that evolve from dissatisfaction or conflicts in society accompany different human actions in environment. The further challenge is therefore perceived in interdisciplinary research of people – environment relationships that would balance spatial and/or land use policy making and professional practice.

References

Butula, S. (2003). Planning for Sustainable Development: The Significance of Different Social Interests in Landscape. Drustvena istrazivanja, 12, 3-4(65-66), 427-445.

Bohnet, I. (2002). A new challenge for landscape planners: the incorporation of social aspects in planning processes. In Ogrin, D., Marusic, I. & T. Simonic (Eds.), Landscape Planning in the Era of Globalisation (pp. 204-212). Proceedings of the International Conference on Landscape Planning, Ljubljana: Biotechnical faculty University of Ljubljana.

Buchecker, M., Hunzikerm M. & F. Kienast. (2003). Participatory landscape development: overcoming social barriers to public involvement. Landscape and urban planning, 64, 29-46.

Council of Europe. (2000). European Landscape Convention and Explanatory Report:T-Land (200) 6. Strasbourg.

Davies, A. R. (2001). What Silence Knows – Planning, Public Participation and Environmental Values. Environmental Values, 10, 77-102.

European Commission. (2001). Environment 2010:Our future our choice, 6th EU action program 2001-2010. Office for official publication oh the European Comunitiy, Luxembourg.

Golobic, M. (2002). Participative, expert or unplanned landscape--is there a room for synergy? In Ogrin, D., Marušič, I. & T. Simonič (Eds). Landscape Planning in the Era of Globalisation (pp. 197-203). Ljubljana: Proceedings of the International Conference on Landscape Planning, Biotechnical faculty University of Ljubljana.

Johannesen J.A., Olaisen J. & B. Olsen. (1998). The philosophy of science, planning and decision theories. Built environment 24/2-3, 155-168.

Kasemir, B., Jaeger, C.C. & J. Jaeger. (2003). Citizen participation in sustainability assessments. In Kasemir, B., Jaeger, C.C., Jaeger J. & M.T. Gardner (Eds.) Public participation in sustainability science (pp. 3-37). Cambridge: Cambridge University Press.

Lyle, J.T. (1985). Design for Human Ecosystems. New York: Van Nostrand Comp.

Marusic, I. (1993). Optimizacijski postupki kot sredstvo za vključevanje varovalnih presoj v celokupno in z okoljem skladno prostorsko načrtovanje. Strukovna ekspertiza. Katedra za krajinsko arhitekturo. Ljubljana: Biotehniška fakulteta.

Marusic, I. (1996). Towards a general conservation theory. In Ogrin, D. (Ed). Nature conservation outside protected areas (pp. 43-55). Proceedings of the International Conference. Ljubljana: Ministry of Environment and Physical Planning and Biotechnical Faculty, University of Ljubljana.

Marusic, I. (2002). Globalization: A new challenge in landscape planning. In: Ogrin, D., Marušič, I. & T. Simonič (Eds). Landscape Planning in the Era of Globalization (pp. 81-83), Ljubljana: Proceedings of the International Conference on Landscape Planning. Biotechnical faculty University of Ljubljana.

O'Riordan, T. (1995). Managing the global commons. In: O'Riordan, T. (Ed.). Environmental Science for Environmental Management (pp. 347-360). Harlow. Longman.

Pogacnik, A. (1979). Javno mnenje Slovencev o oblikovanju okolja na temelju fotoanketiranja – raziskovalna naloga. Ljubljana.

Steinitz, C. (1990). A Framework for Theory Applicable to the Education of Landscape Architects (and Other Environmental Design Professionals). Landscape Journal, 2, 136-143.

acs73_17