ACTA UNIVERSITATIS AGRICULTURAE ET SILVICULTURAE MENDELIANAE BRUNENSIS

Volume 62 53 Number 3, 2014
http://dx.doi.org/10.11118/actaun201462030507

ANALYSIS OF RURAL SOCIAL ASPECTS IN THE CONTEXT OF LAND CONSOLIDATIONS AND LAND USE PLANNING, THE CASE STUDY, CZECH REPUBLIC

Petr Karásek[1, 2], Dagmar Stejskalová[1], Zbyněk Ulčák[3]

[1] Research Institute for Soil and Water Conservation, Lidická 25/27, 602 00 Brno, Czech Republic
[2] Faculty of Agronomy, Mendel University in Brno, Zemědělská 1, 613 00, Brno, Czech Republic
[3] Faculty of Social Studies, Masaryk University, Joštova 10, 602 00 Brno, Czech Republic

Abstract

KARÁSEK PETR, STEJSKALOVÁ DAGMAR, ULČÁK ZBYNĚK. 2014. Analysis of Rural Social Aspects in the Context of Land Consolidations and Land Use Planning, the Case Study, Czech Republic. *Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis,* 62(3): 507–515.

Our project was focused on the investigation of attitudes and preferences of the rural population concerning landscape protection and use in the context of land use planning documentations – Land Consolidations (LC) and Land Use Planning (LUP). The survey was organized in the form of questionnaires distributed in four model localities. In total, we obtained 196 responses (almost 32%) out of 617 questionnaires distributed via elementary schools. The respondents are more familiar with the notion of land use planning (80% know the term of land plan) than land consolidations (known by 50% respondents only). The local population are not confident about the land-managing subjects (60% respondents do not believe that the subjects managing agricultural land e.g. protect arable land against erosion). Seventy % of respondents agree with restoration of balks, with reducing the acreages of agriculturally managed land tracts. More than 90% respondents perceive the landscape as a space for recreation, sports, and rest. Only 20% of inhabitants are employed in agriculture (over 60% respondents work in services or other specializations). The respondents prefer natural environment over the economic aspects of the rural areas.

Keywords: land consolidations, land use planning, social aspects, rural areas

INTRODUCTION

An integral part of Research Plan MZE0002704902 is project P04 designated „Evaluation of Changes in the Rural Space Caused by Measures within Land Consolidation and Land Use Planning." We have selected four model localities differing in intensity of exploitation, natural conditions and social requirements. Two model localities are intensively agriculturally managed in differing natural conditions, the third model locality is situated in a water source protection zone and the fourth is a natural protected area. These localities are the Hustopeče region ("Hustopečsko"), Hubenov region ("Hubenovsko"), Žejbro stream basin ("Žejbro") and selected cadastral area of Protected Landscape Area (PLA) Železné hory ("Železné hory").

The present status of land use is a result of not only the combination of natural factors and economic system; an important role is also played by differing cultural perspectives. Different cultures perceive and interpret the landscape differently. The cultural aspect reflects the differing cultural and political history of the landscape, allowing us to study its past and predict its future development. The differing perception of the landscape by various cultures is understandable, given their geographic, ethnical or socio-economic differences in various time periods (Palang, 2003). According to Jones (2008), in practice it means that almost all landscapes bear traces of both natural and human activity and these traces are interconnected. At the same time, all landscapes are cognitive, with varying significance for different groups of people. Our environment is formed in our

minds. This is exemplified by specific denomination of landscape elements and localities by particular cultures. Another important factor is the varying esthetical perception of nature and landscape by society (Stibral, 2005).

The landscape use is not solely limited to agricultural subjects, but also to other institutions asserting their interests (nature protection, water management, housing, etc.). Before deciding the preferred type of use, the existing status should be assessed and the optimum future exploitation should be defined. Assfalg (1992) points out that landscape use cannot meet all maximalist requirements and demands. The optimum land use must be respected, and the preferred exploitation should be decided based on the proposed optimization. Toht (1988) also stated that when dealing with negative phenomena in the landscape (erosion or low ecologic stability), re-evaluation of the overall intensity of landscape is indispensable and much higher emphasis must be placed on biodiversity and extra-productive functions. The landscape elements (structure) and their quality – forest, meadows, orchards, permanent grass cover (PGC), arable land, balks, water surfaces, water courses, and other surfaces represent the factors determining the landscape functions. The landscape function then means the relationship between the individual landscape elements, their mutual interaction and conditional potential use (Forman, Godron, 1993; Fladmark, Mulvagh, Evans, 1991; Zonneveld, 1979).

Conflicts concerning the landscape use are apparent particularly at the regional level, where individual interests have been applied. The local and regional management cannot decide without the knowledge and balance of the temporal changes in land use. A key role is played by the results of integrated landscape analysis enabling integration of the particular data and their subsequent implementation into the proposal scenarios (Steinhardt, Volk, 2003).

Spatial planning has been used abroad approximately starting from the 1970s (Shearer, 2005). If the present emphasis in EU is laid on the correct agricultural policy (CAP) and we wish to apply the European Landscape Convention (CAP, 2000), we should employ the tools anchored in our law to their maximum extent. The decisive laws of the Czech Republic (except for the laws for nature protection) mentioning nature preservation (and thus protection of the rural space) explicitly in their text are: the Building Act and the Act on Land Consolidations and Land Offices (Act No. 183/2006 of the Collection of Laws of the CR (Sb.), Act No. 139/2002 Sb.). Land consolidations are considered the primary tool for rural development, influencing a number of factors (agricultural production, landscape use and protection, respecting ownership relationships). Land consolidations have the potential to propose optimal landscape use, serve as a tool for decisions and as a unique means of sustainable rural development. The validity of land consolidations is practically unlimited in time. The range is specified within the perimeter of land consolidation – mostly agricultural land in one cadastral area. The detail of processing is high. In land consolidation are reflected property relationship of individual plots. Land use plans serve for functional-spatial planning and should reflect the future vision of landscape use based on collaboration with the local population. The validity of land use plans is in the range of 10 to 20 years. After this time, usually follows preparation of a new land use plans. The range of land use plans is mostly administrative territory of the municipality.

To prepare the planning documentations, various data and methods are used, either directly defined by the law or recommended by the methodologies. However, the adequacy of the sole knowledge of the physical locality status serving as a basis for preparing the land use planning documents is questionable.

When dealing with the integration of social requirements into the rural space (rural landscape), some international authors employ the quantification model of the '*suitability index for variables*'. This approach uses quantification parameters to determine the difference between the patterns preferred by landscape users and patterns of coverage scenarios (for landscape structure and use) according to the present status or proposal of its future use. The suitability index for variables serves to assess how the extra-productive landscape functions could be increased (Pinto, Cavalho, 2012).

International journals have thus started to publish rural studies increasingly interrelating the social and demographic characteristics with the physical landscape aspects in their proposals. Such landscape concepts and planning will economise or better valorise the enormous funds spent on the preservation or improvement of the visual landscape effects. For that purpose, the preferences of the local population and their requirements must be clarified. Preferences for a particular landscape type are very individual and depend on the demographic groups and individual value orientation. These conditions should be known before starting investments into the particular region (Howley, Donoghue, Hynes, 2012). Similarly, Neumeier (Neumeier, 2012) has found that the lack of social innovations is one of the strongest aspects impeding the rural development. The author also points out that social innovations do not just reflect economic development, but sociology, regional economics and planning as well, i.e. mainly the needs of the local population.

Knowledge of the region, the overall situation and condition of the landscape is one of the important aspects for optimum land use. Especially in history was the optimal land use subject to the overall geography (for example a villages were located at the source of water

in lowlands). At present, the property relationship, have an important role in the organization of the landscape.

MATERIAL AND METHODS

Questionnaires campaign was performed in four model areas. The selected model localities represent various landscape types and differing requirements for their use and protection. The Hustopeče region includes 7 cadastres. It represents an intensively managed landscape of south Moravia with dynamic natural conditions. The catchment of water reservoir Hubenov is situated in the eastern part of Bohemo-Moravian Highland on the boundary between the Jihlava Elevation and Velké Meziříčí Upland, covering 17 cadastres. The Žejbro stream basin represents 23 cadastres situated in the northern extremity of the Bohemo-Moravian Highland. The locality was selected for its intensive agricultural management. In PLA Železné hory the selected locality is part of the Chrudimka catchment in 7 cadastres. The locality was selected for its situation within a protected landscape area with corresponding land management.

In these four model areas questionnaires were distributed through the elementary school to the home. In each elementary school were selected several classes (1st Primary School) where questionnaires were distributed. The choice of the model territories was directed to the cadastral territory of rural areas with small villages. In each selected cadastral area (village) was not a primary school. For this reason, questionnaires were distributed only to selected municipalities.

The material assessing the population awareness of the planning documentations and their relationship to the landscape was represented by questionnaires distributed in 2011. In total, 617 questionnaires had been distributed and 196 returned with responses (Tab. I).

1: *Selected model localities in the Czech Republic*

We consider that the landscape management and land use should be based on the assessment of landscape target characteristics as a key factor, using the knowledge of its development and values, definition of its potential, and determination of the landscape perception by the population. The target characteristics are defined at various levels and have been officially integrated into the urban and rural planning and development. An indispensable role in defining the target landscape characteristics is played by collaboration with the population and their final approval. Today, social sciences are facing the decision how to obtain and evaluate the information on the studied objects. The advent of positivism and the tendency to get closer to the methods of natural sciences along with the development of statistical methods and tools, which are easily evaluated, resulted in development of quantitative methods. These methods attempted the highest possible objectiveness, trying to preserve a non-evaluating distance from the studied phenomenon and produce data usable and comparable with other investigated data sets.

I: *Number of distributed and returned questionnaires*

Model locality	Cadastral area	LC	LUP	School name	No. of distributed questionnaires	No. of returned questionnaires
Hustopečsko	Hustopeče	yes	yes	ZŠ Komenského	75	30
				ZŠ Nádražní	75	0
	Pouzdřany	yes	yes	ZŠ Pouzdřany	22	10
	Dolní Věstonice	yes	yes	ZŠ Dolní Věstonice	30	0
Hubenovsko	Dušejov	yes	yes	ZŠ Dušejov	35	32
	Výskytná	no	no	ZŠ Výskytná	50	1
Žejbro	Hlinsko	no	yes	ZŠ U Ležáků	60	15
				ZŠ Smetanova	60	29
	Skuteč	no	yes	ZŠ Komenského	60	18
				ZŠ Smetanova	60	37
Železné hory	Horní Bradlo	no	yes	ZŠ Horní Bradlo	40	7
	Holetín	no	yes	ZŠ Holetín	50	17
Total (No.)					617	196
Total (%)						31.8

Quantitative research tries to reduce the studied world to simple hypotheses that can be easily tested and either confirmed or rejected. This effort for exactitude, however, is often subjected to criticism in the area of social sciences. Because human behaviour has no mechanical causes, it cannot be unequivocally explained and understood using the positivistic view of the world (Hammersley, Atkinson, 1997). Quantitative research creates a set of easily deciphered data, and is therefore especially attractive to the deciding institutions that need to quickly define the social problem and its potential solution. Researchers try to reduce social reality to several indicators that they consider of key significance for their studies. Consequently, the responses are often of the yes/no nature.

The distributed questionnaires contained three basic areas of questions:

- basic data about respondents and relationship to the landscape,
- land consolidations (LC), land use plans (LUP) and agriculture,
- present situation at the place of residence, socio-cultural values.

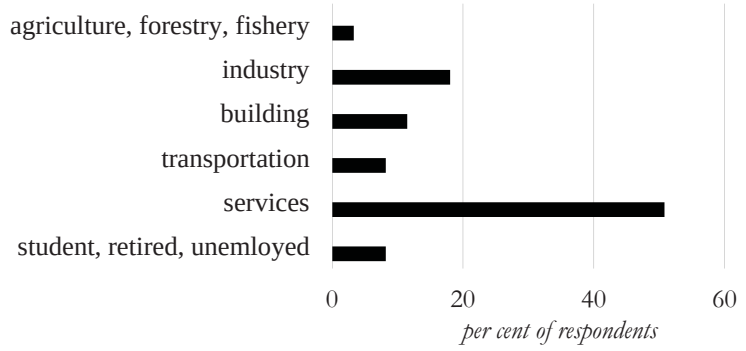
RESULTS AND DISCUSSION

When designing the questionnaires we focused on three areas of questions. The first was aimed at knowing the sample of respondents and at finding out the relationship of the respondents with their place of residence, determining the subjective characteristics of the place and its perception. The second area of questions was addressed to the population awareness of the planning tools and their relation to the landscape, and the third part of the questions dealt with socio-cultural values.

Our survey brought results from 196 respondents (i.e. less than 32% out of all addressed). The questionnaires were distributed in four model localities. However one model locality (Hubenovsko) was not evaluated due to capacity problems.

The results of basic data on the exponents show that the predominant role in the survey was taken by women 65% (men only 35%). Age of the respondents was between 20–35 years old (32%), 35–50 years old (63%), more than 50 years old (5%). The participants were mainly worked in sector "services" (51%), "industry" (18%) and in agriculture only 3.3% of respondents (Fig. 2). Most respondents (53%) did not originate from the place of their present residence. Only 47% of respondents live permanently in the selected model localities.

At the beginning of the questionnaire the participants had to choose from the list the items they believed to best characterize their relation to the investigated locality. Because this was a multiple-choice question, the following charts show percentages with a sum exceeding 100%. The most frequent answer was "family", which was selected by 80% of the participants. Approximately half of the respondents chose the option "landscape" (nature). A relatively low proportion of participants identified themselves with the locality through customs and traditions or community coherence.



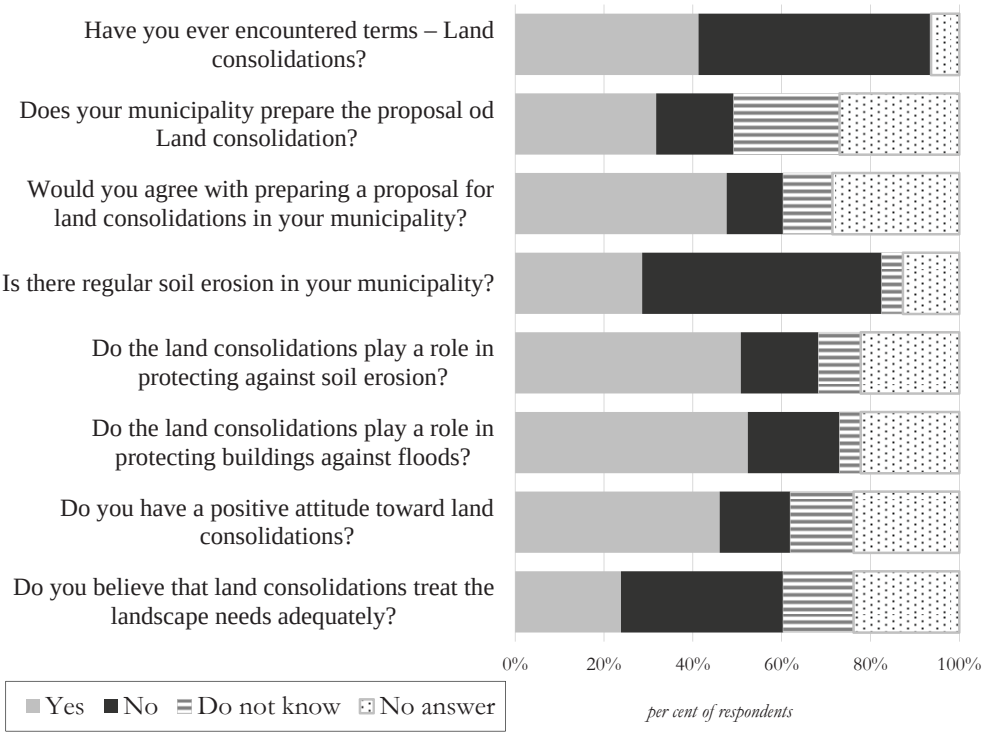
2: *Basic data on the respondents – economic activity*

3: *Showing the landscape significance by the respondents*

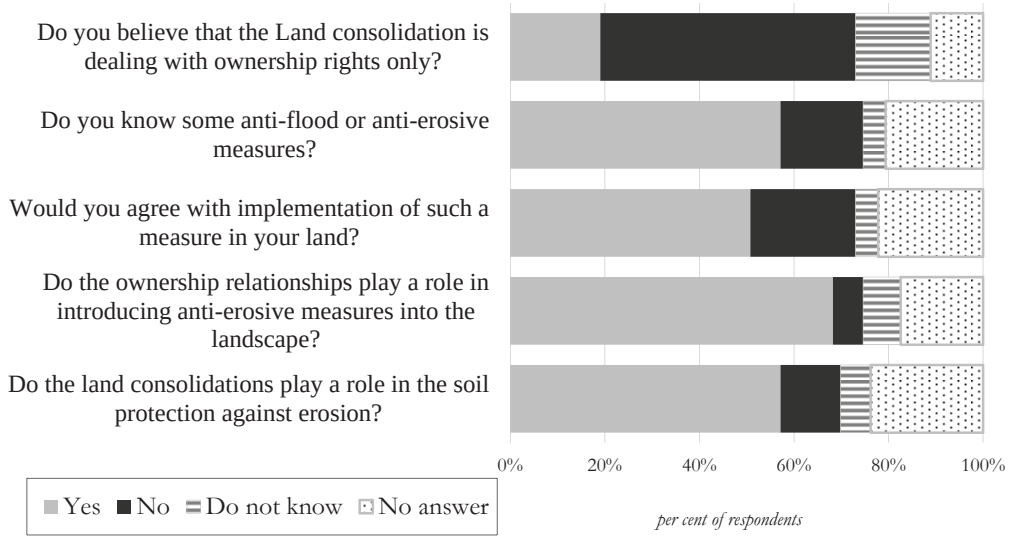
Land Consolidations, Land Use Plans, Agriculture

This part of the questionnaire was focused on the knowledge questions related to the planning and management in the landscape. The questions were mainly formulated as a 'battery of items' related to the particular topic with possible dichotomous answers (yes/no). Although the questionnaire did not contain the "I don't know" option, respondents often inserted this answer, and so the charts also contain the percentages of these responses. Also, the percentage of missing answers should be followed closely because part of the respondents omitted certain questions, and this information should therefore be included in the processing for correct representation of the proportions of "yes/no" answers for the particular items.

Further questions were more specific and concerned the measures better imaginable by the participants. The proportion of the "I don't know" answers was therefore lower for most items and the respondents declared (at least subjectively) their knowledge of anti-erosive or anti-flood measures.



4: *Showing the respondents' idea of Land Consolidation*



5: *Showing the respondents' idea of the land conservation content*

The LUP is a planning document that has already become common knowledge, so that our survey brought almost 80% of positive answers to the question whether the respondent had already encountered the terms of land plan or urban study.

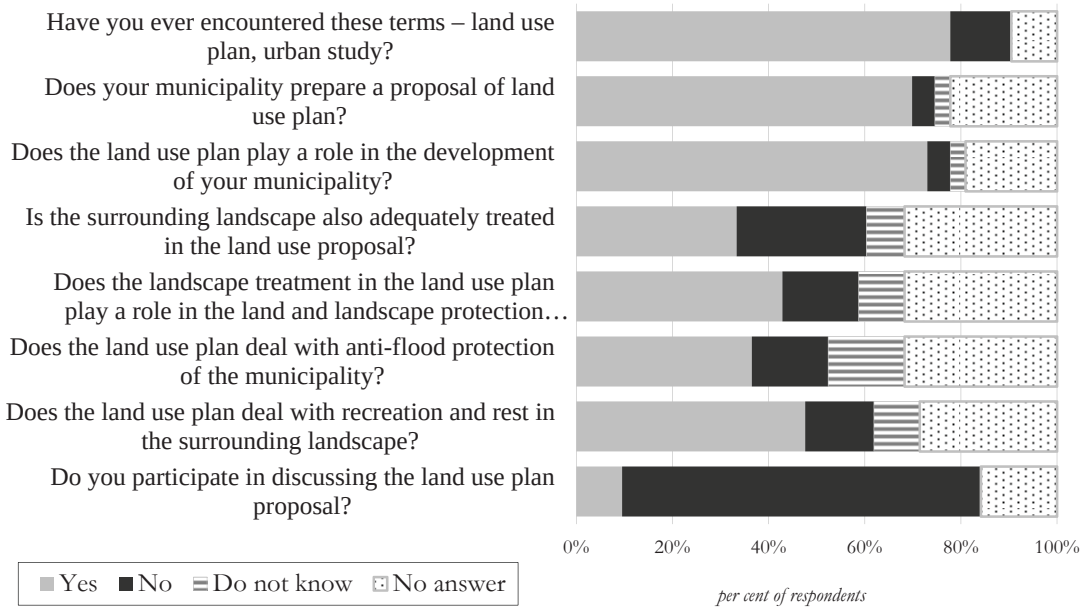
Another topic closely associated with the landscape is agriculture, of course. The following chart summarizes the answers to the questions dealing with agricultural activities related e.g. to anti-erosive measures and generally sustainable ways of management.

Current situation in the place of residence, socio-cultural values

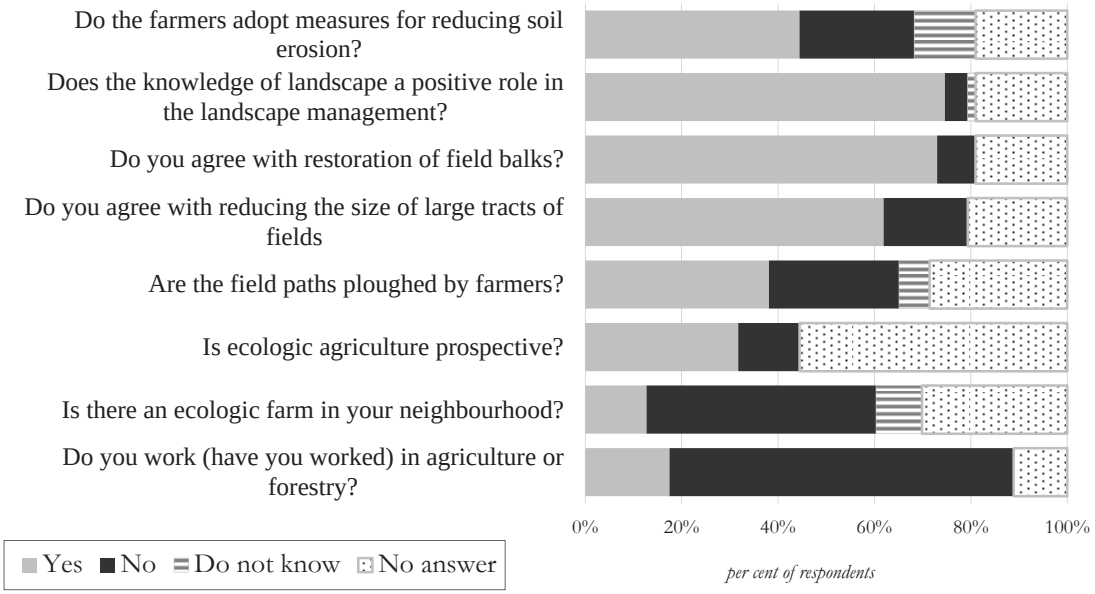
The last integral part of the questionnaire was devoted to deeper probing the subjective attitudes to the place of residence, its connotations and perspectives perceived by the respondents. Fig. 8 shows prevalence of positive attitudes towards the locality in relation to the economic situation and development potential (which, however, was not specified in detail).

Although the respondents considered the economic situation of the locality relatively good, the economic aspects were not of major importance to the value of their place of residence. The natural and cultural values were mentioned in the questionnaires more frequently.

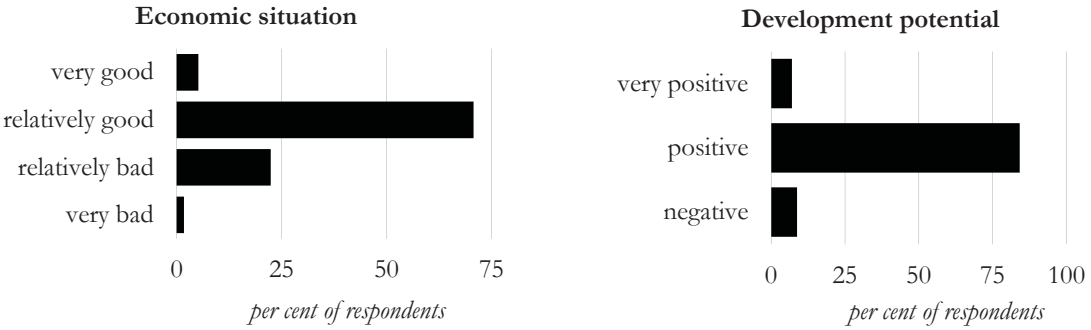
The method similar to semantic differential investigates the subjective connotations of the place of residence. The respondents answered a set



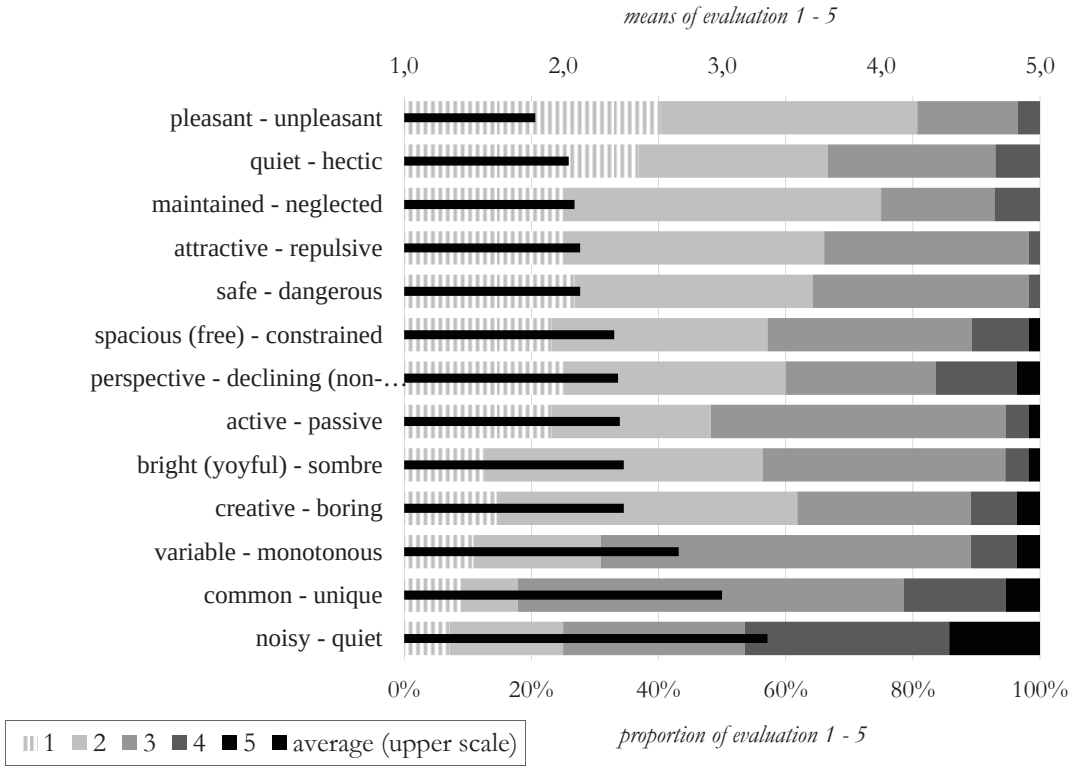
6: *Shows the awareness of respondents of the Land Use Plan*



7: *Expresses the opinion of respondents on agricultural practices related to the landscape*



8: *How do you evaluate the economic situation in the locality and the potential of further community development*



9: *Expressing the perception of the place of residence by the respondents*

of 13 oppositely formulated adjectives and in each pair they were asked to choose a variant at a 5-point scale. The value 1 corresponds to extreme adherence to the positive variant (except for noisy – quiet), the value 3 is the neutral middle of the scale and the value 5 means extreme adherence to the negative variant. Fig. 9 shows the proportions of numerical evaluations (categories 1–5; bar chart – per cents), along with the means (narrow black bars). For all pairs, with the exception of "common – unique" and "noisy – quiet", markedly positive evaluation prevailed (means deep below the neutral value of 3).

The evaluation by a set of adjectives was complemented by two general questions on the impression the outside and inside observers get from the overall image of the locality. The prevailing positive evaluation was consistent with the answers in semantic differential. When we look at the strongest correlations, we rather logically find the strongest link to the pair of adjectives "maintained – neglected", "attractive – repulsive", as well as "prospective – declining".

In the final part of the questionnaire the participants were asked to consider the purpose to which they would spend public funds (Fig. 10). Here we also observed the high value attributed to the visual effect of the environment – the most frequent answer was "to improvement of public areas". This item would be included into the budget by two out of three participants (slightly over 60%). One in two participants also mentioned nature protection closely followed by development of infrastructure. Culture was scored highly, while support of economic development and housing were selected much less frequently. When

placing these results into the context of priorities usually offered by communal politicians as their electoral programme, we may only assume that the politicians' idea on the electorate was false, or another "target" group had been questioned in our survey.

SUMMARY

At the beginning of the questionnaire the respondents expressed their relationship to the particular locality and the relationship to the landscape. 80% of respondents stated that the link to the particular place was their family, and almost 50% selected the landscape (or nature), over 40% cited friends and neighbours, 40% their own land plot containing their residence, and less than 30% cited employment.

A relatively surprising fact was the answer of the respondents that they do not consider the country as their place of support but the place for recreation and sports, and more than 90% of respondents considered the country as a place of rest and contact with nature.

The following group of questions were centred on LCs, LUPs, and agriculture. Only ca 50% of respondents stated that they were familiar with the notion of LC. In more detailed questions concerning the measures in LC almost 60% of respondents asserted that LC play a role in the soil protection against erosion, ca 50% of respondents would agree with implementation of such measures in their land, but only ca 22% of respondents believed that LC treat the problems of landscape adequately.

Contrary to that, LUPs was a much more familiar document in general population, and ca 80% of respondents stated to have already encountered the term of LUP; 70% of respondents stated that their municipality was preparing the land use plan and ca 35% of respondents believed that the LUP did not treat the problems of landscape adequately. It is surprising that ca 70% of respondents did not participate in LUP discussions (contrary to the knowledge of LUP by 80% respondents, who probably studied it individually at the municipal office).

Concerning agriculture, only 40% of respondents were convinced that farmers implement measures for reducing erosion, over 70% respondents agreed with restoration of balks in the landscape and 60% respondents agreed with reducing the acreages of large tracts of agricultural land.

All responses should be viewed in the context of the fact that only 20% of rural population work in agriculture (over 60% respondents gave other types of employment than agriculture – services or other specializations).

Based on our survey we may draw the general conclusion that the present tendency is not to consider the country as a place of support by its population. The landscape is perceived as a space for recreation, sports and rest. The local population would welcome more landscape variation. The economic aspects of the country do not represent the main expectation of its inhabitants; natural environment is preferred. The respondents characterized the social context of the country as a quiet environment and in future they expect improvement of public municipality areas (over 60% respondents). Almost 50% of respondents wish to protect nature, while economic development and housing do not represent priorities for the population of rural areas.

Acknowledgement

The paper was supported by Project No. MZE 0049002702 of Ministry of Agriculture of the Czech Republic and Project No. TD020241 of Technology Agency of the Czech Republic.

REFERENCES

BOLTIZIAR, V., BRUNA, V., KROVAKOVA, K. 2008. Potential of antique maps and aerial photographs for landscape changes assessment – an example of the High Tatra Mts. *Ecology*, 27(1): 65–81.

FLADMARK, J. M., MULVAGH, G. Y., EVANS, B. M. 1991. *Tomorrow's Architectural Heritage: Landscape and Buildings in the Countryside*. Edinburgh and London: Mainstream Publishing.

FJELLSTAD, W. J., DRAMSTAD, W. E. 1999. Patterns of change in two contrasting Norwegian agricultural landscapes. *Landscape and Urban Planning*, 45(4): 177–191.

HOWLEY, P., DONOGHUE, C. O., HYNES, S. 2012. Exploring public preferences for traditional farming landscapes. *Landscape and Urban Planning*, 104(1): 66–74.

JONES, M. 1988. Progress in Norwegian cultural landscape studies. *Norsk Geografisk Tidsskrift*, 42: 153–169.

KOELLNER, T., SCHOLZ, R. W. 2008. Assessment of land use impacts on the natural environment – Part 2: Generic characterization factors for local species diversity in central Europe. *Inernational journal of life cycle assessment*, 13(1): 32–48.

KUBEŠ, J. 1995. Biocentres and corridors in a cultural and regional ecology. *Landscape ecology*, 10(3): 133–142.

MAASOP, H. L., VAN DER GAAST, J. W. 2009. Historical water management in the river basin of the Baaksche Beek and the consolidations to the water system as a result of change in land use. *Physics and chemistry of the earth*, 34(3): 192–199.

NEUMEIER, S. 2012. Why do Social Innovations in Rural Development Matter and Should be Considered More Seriously in Rural Development Research – Proposal for a Stronger Focus on Social Innovations in Rural Development Research. *Sociologia Ruralis*, 52(1): 48–69.

PALANG, H., FRY, G., 2003. Introduction. In: *Landscape interfaces*. Dordrecht: Kluwer Academic Publisher.

PETERSON, G., ALLEN, C. R., HOLLING, C. S. 1998. Ecological resilience, biodiversity and scale. *Ecosystems*, 1: 6–18.

REGER, B., SHERIDAN, P., SIMMERING, D. et al. 2009. Potential Effects of Direct Transfer Payments on Farmland Habitat Diversity in a Marginal. *Environmental management*, 43(6): 1026–1038.

STIBRAL, K. 2005. *Why is Nature Beautiful? Esthetical Perception of Nature in Modern History*. Prague: Dokořán.

THORNE, J., HUANG, C. 1991. Toward a landscape ecological aesthetic: methodologies for designers and planners. *Landscape and Urban Planning*, 21(1–2): 61–79.

Contact information

Petr Karásek: karasek.petr@vumop.cz
Dagmar Stejskalová: stejskalova.dagmar@vumop.cz
Zbyněk Ulčák: ulcak@fss.muni.cz