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of old meanders etc.), after which the vegetation needs a certain regeneration period during which the river corridor resembles a building site.

1. Guidelines for management of urban water courses corridors

Because of the complexity of managing urban river corridors that has to ensure environmental sustainability, but also meet the demands and expectations of users, a systematic approach is needed. Scheme 2 shows the structure of guidelines for river rehabilitation in urban environments. They include guidelines for physical design, technical execution and management.

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Acknowledgement
We are grateful to the Ministry for education, sports and science of the Republic of Slovenia for financing the first author of this article.

Graphic material:

Graph 1: *Level of naturalness of rivers and streams in the Municipality of Ljubljana compared to the state in Slovenia (VGI, 1994, 2001)*

Diagram 1: *Structural parts and phases for project-management of the riverbanks (Source: Simons & Boeters, 1998)*

Table 1: *Example of an administrative-planning proce dure of design, renewal or rehabilitation of a watercourse according to the present and proposed legislature (Source: Prelovšek, 2001)* ***Table 2:*** *Public opinion concerning changes to the river regime for each of the three rivers in percents (Source: Tunstall in dr., 2000)*

Diagram 2: *The guidelines structure for rehabilitating watercourses in the urban environment*

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Mojca GOLOBIČ
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Researching the value system of interest groups as the starting point for directing urbanisation of the countryside

1. Introduction

Because of obvious and massive changes and processes in the countryside it is becoming ever more clear that it cannot be defined with agricultural activities and pertaining physical patterns. Jakoš and Gosar established that *only* 47,7 % of all rural inhabitants of Slovenia live in rural areas. Even more interesting is the fact that 37,7 % of all rural population live in urbanised areas. According to the authors 14,6 % of the rural population lives in transitory areas (Kovačič in dr.,
1997, str. 101). In his discussion about physical planning in the countryside Mihevc states that mixed farms, i.e. farms which gain their income even from non-agricultural activities are those which »take care about the urban management of villages and that the share given by workers for urban services (roads, water supply, telephone etc.) is significantly higher than the one given by farmers. Such circumstances raise the issue of the social structure of future villages and the demand for maybe new settlement concepts different from the present ones.« (Kovačič in dr., 1997, str. 114)

Redefinition of countryside is therefore a consequence of restructuring processes on one side and urbanisation processes on the other. The later is especially pronounced in the vicinity of large urban centres and important roads, nevertheless, as can be seen from the before stated facts, the influx of urban lifestyle is typical for the whole of Slovenia. Urban lifestyle demands above all, better infrastructure, while local government tries to improve services - social services, e.g. health care, education, culture, sports, etc. Areas that were until recently completely agricultural have in the meantime become the target of various development pressures, often supported by local governments, since they are justly or not seen as opportunities for their area's development. In the opposition are often representatives of various sectors on the national level and non-governmental organisations that argue against development. Urban lifestyle brings changes to the physical environment, mainly by increasing exploitation of resources and specific parts of the natural environment. The local population is generally not sufficiently informed about all these changes and they are usually invited to participate in debates concerning local development in an utterly formalistic manner. Before we can create opportunities for agreements concerning development issues on the local level, numerous questions have to be addressed, such as: will abandoning of farming imply physical degradation or the opposite, enable opportunities for rehabilitation either with a different more vital activity or restitution of the natural state of the countryside; which activities will enable rehabilitation of the area; and above all, where should agriculture be preserved even with the help of sufficient subsidies; whe

re should abandoned surfaces be used for urban uses and where left over to natural processes? Answering all these questions implies a clear definition of processes of both positive and negative changes, which are typical value definitions closely tied to standpoints, goals and value systems of all involved. This means that they cannot be established only on professional assessment, but also have to pay respect to visions and wishes of the local population.

This article deals with the municipality of Komenda, where processes of changing agricultural uses are very intense, with trends for urbanisation, consciousness about quality in living environments and recognition of the importance of natural landscape are increasing. Correspondingly to urbanisation and emerging »urban lifestyle«, also the population's education level is growing. The latter is very significant in improving participation with physical planners, local authority and government. The condition is typical for numerous places in Slovenia and is therefore an interesting case. An innovative method for public participation of Ko- menda's population in value discussions is presented, focusing on the obtainment of opinions and their inclusion in planning and management proposals.

2. The inclusion of standpoints and values of users in physical planning procedures

Physical planning is today encountering an increasingly critical attitude by the public to development initiatives, resulting in refusal of planning proposals. Numerous complications and failures in achieving planning decisions show the weakness of expert arguments on one side, as well as the insufficiency of intuitive formulation and adoption of decisions on the other, coupled with the disbelief in professional and moral authority of experts. The condition is typical for the period of growing public concern for environmental preservation and can be seen as a generally valid characteristic for all development manifested in the physical environment (Lyle, 1985, pp.126). Moreover, some new proposals stress that it is the essential part of the planning procedure (Stalder, 2001). In future planning it will have to be counted on as a fact. Conflicts, uncertainty and subjectivity cannot be removed from the planning practice with such an improved expert approach. Identification and respect for unharmonised interests, understanding of alternative possibilities and evaluation of their effects, transparency in procedures, inclusion of values and standpoints of involved interest groups and their joint functional integration are therefore essential conditions for successful planning procedures.

The largest part of knowledge concerning physical space stems from technical and scientific, i.e. expert knowledge. In circumstances where decision making is highly uncertain, e.g. high risk technology and development with long-term effects, or where values, subjective share in decisions, are relatively high, the emotional components, such as fear, distrust, frustration, can be more important than physical i.e. the cognitive components themselves. Subjectivity, interest and strong influence of context can be the most important elements of knowledge in the physical planning procedure. The value of categories, such as potential sites and socially suitable/unsuitable uses in fact depend on what particular users recognize as potential and which land use would in their opinion be adequate. These opinions differ between individuals and interest groups and can correspondingly differ from values defined by the market or experts. This is why, despite the use of high expert knowledge, solutions established only on expert knowledge are often unacceptable for the public and that with corrections to expert knowledge - with new facts, measurements, calculation, we often cannot reach concordance on how to act or decide which physical planning solution is correct (Picture 1).

Veneris (1993) discerns between two types of planning procedures: »cohesive and conflicting«. The first implies planning that solves technical conflicts within a generally accepted social consensus on values. This possibility in principle exists even within a pluralistic social context, but demands prior resolution of social conflicts concerning values. The second implies solutions prepared in such a manner that conflicting value systems are included. It turns out to be the easier path - it isn't necessary that physical solutions of otherwise conflicting value systems are also conflicting, meaning that one can avoid always complicated and arduous and often unsuccessful mediating between value systems. In principle such mediation is highly questionable because of idealised goals set to align with particular viewpoints on development/preservation, as was empirically proven by Pogačnik in a research about public opinions in Slovenia about urban and countryside environments (1979, str.2). Similarly Mlinar discussed the difficulties of direct use of values obtained from surveys amongst the public, since »preferences and wishes express existing conditions and not those circumstances that would emerge from implementation« (Mlinar, 1993, pp. 320). These can be checked only after solutions are formulated, but also compensation strategies, mutual interdependency between particular measures etc. A consistent approach in a »conflicting« context should enable and ensure the formulation of as many various solutions, as the real problem demands (Veneris, 1993). This demands methods that can ensure identification of interests, definition of suitable measures and a method of synthesising solutions for particular interests. Besides the still prevailing notion about the lesser value of non-expert knowledge an important obstacle for discovering and integrating such knowledge into planning procedures is in fact the lack of effective methods. The »scientific« approach to physical planning, which relies heavily on rational descriptive and analytical methods, has limited success in accepting intuitive day-to-day knowledge, standpoints and values and in providing efficient identification of issues seen by users of space. Here participatory approaches are much more efficient, approaches that are based on public participation, the precondition for obtaining and using non-expert knowledge in the planning process.

3. Case: Komenda

In the municipality of Komenda urbanisation processes mingle with traditional life patterns that are largely tied to agriculture. Agriculture is still an important activity, although farmers with sole income from agriculture are few although most of the population still indulges in agriculture as a supplementary activity. Craftsmanship is also important. Among the processes stimulating urbanisation (Kos, 1998), several are typical for Komenda:

- expansion of the radius around employment centres attracting daily migrants shows the typical life patterns of commuters, especially to Ljubljana and Kamnik and also Kranj (Picture 1);

- improvements in transport and communication technology;
- growth of employment in the public sector and personal services;
- changes in living preferences: more and more people would like to live in the countryside.

Komenda is therefore subject to typical issues and challenges emerging from the restructuring countryside by changes in activities and land use. Answers to these questions have to be largely facilitated by the physical plan, i.e. the document that expresses values and goals of the community, and manifests the strategy and methods for implementation in reality. Among the possible development strategies for the municipality are:

- preservation and development of agriculture, for which Komenda has relatively beneficial natural potentials;
- transformation into a dormitory satellite of Ljubljana;
- establishment of a garden city in the green hinterland as a counterbalance to urban Ljubljana;
- exploiting the relatively important traffic setting for developing retail functions on the large scale to supply the wider hinterland.

3.1 The concept of the procedure for obtaining knowledge

When conceptualising the procedure for gaining knowledge we have to address two essential questions:

- whose knowledge do we want to gather, and
- in what way can this knowledge be efficiently obtained?

Whose knowledge do we want to gather?

Recognising the public with methods, such as: participation analysis, stakeholder analysis, review of institutional environment, are all parts of most strategic planning approaches (Kammeier, 1998). The essence of recognising the public is the identification of directly or potentially involved groups or individuals, i.e. all those affected by development in a certain area who could gain or loose from changes (Healey, 1996). With this approach the term »interested public« is often limited to researching value-based priorities of already established interest groups. In our case the term »interested public« is seen as a territorially defined group,

i. e. all the inhabitants in the municipality. The rationale is in enabling equal involvement in the widest sense, thus also individuals or those that haven't as yet articulated their interest in a recognisable form or possibly don't even know that their opinion is relevant for the procedure.

How can we obtain this knowledge?

The procedure of obtaining knowledge is based on a survey. With a statistical random sample we can ensure equal access to knowledge from the whole population thus avoiding manipulated results often seen in methods based on workshops or meetings, where more active groups or individuals can affect results. Simultaneously the approach ensures absence of influences between individuals. The obtained opinions are therefore the basic independent opinions of each individual.

The questionnaire contains two types of questions. In the first part they are classical, textual, where individuals answer questions about physical development, values and standard demographic questions. The second part of the survey demands from respondents to answer in the form of cognitive maps. On topographic maps respondents draw areas, where in their estimate certain functions, which are parts of the physical plan could be placed. Numerous researchers use maps as a communicative media in pronounced physical planning problems and computer applications (e.g. Carver in dr., 1998). Numerous authors point out the method of using drawn cognitive maps for similar tasks (in the context of GIS support, e.g. Ventura et al. 1998 or Harris and Weiner 1998). Most approaches have in common the classical method of drawing on topographic maps; the variation is thematic maps. The essential difference is in the approach with individual questionnaires (e.g. Polič et al., 2000) as compared to cases where drawing is done on workshops, whereby such maps are results of mutual agreement of each interest group (e.g. Harris and Weiner, 1998; Macnab, 1998; Ventura et al., 1998).

3.2 Results and analysis of the survey conducted amongst the population of the municipality of Komenda

Obtaining knowledge from the inhabitants of Komenda was based on a survey. The survey was carried out on a statistical equal random sample with field surveying.[1] We got 196 filled-in questionnaires, slightly more than half the sample (54,4 %). In view of the method of field surveying, the result is small, but still represents a statistically adequate sample of inhabitants. There were slightly more male than female respondents. Representation by age groups was fairly balanced, while in the education groups high school graduates and professional training prevailed. Most of the respondents lived in Komenda since birth, while recent immigrants amounted to 3 %. Almost half of them are employed (or go to school) outside Komenda (graphl); most earn their income from non-agricultural activities. Agriculture is the sole source of income for only 6 % of respondents (graph 2).

If we summarise the results we can establish that its inhabitants see Komenda as a place of predominantly agriculture and crafts, while its identity is marked especially by Peter Pavel Glavar and tied cultured heritage and horse breeding and racing. Most of the respondents stated that life in Komenda wasn't tied to risks and that there weren't many disturbances in the living environment. 40 respondents didn't mention any disturbances, while the most significant source of disturbances is apparently agriculture. The frequency of mentioned disturbances coupled with source of income of respondents showed that agriculture was seen as a disturbance by people not dependant (or partially dependant) on agriculture, while farmers saw traffic and other functions as more disturbing (graph 3).

Attitudes on the place's development show that especially functions of so called, social standard should be developed, such as health care and culture, while noted economic activities include tourism and crafts, less agriculture and forestry and significantly less industrial functions. Preservation directives disclose a massive need for protecting all mentioned values, the natural environment seen as most important (water resources, forests), normatively defined values (natural and cultural heritage) came second and agriculture last (Picture 2). Largest concordance was seen for water resource protection areas and significantly less for agricultural land.

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3.3 Use of obtained knowledge in the physical planning process

Because of the relatively high number of encountered individuals we couldn't deal with each individual as a bearer of interests. We assumed that interests of individuals could be grouped into several interest groups, whose perception of Komenda, value systems and attitudes to development differ significantly. We can assume that these interest groups differ even when comparing cognitive maps, i.e. value decisions, manifested in real physical dimensions.

Analysis of the questionnaires was done by using the statistical mean clustering method in the programme package Statistica 5.0. The respondents from Komenda where grouped according to selected criteria, whereby individuals were similar, and groups as different as possible. Since essential questions concerning physical planning deal with development of functions and preservation of qualities, for the analysis we chose question 5 (to what extent should the development of certain activities be stimulated) and question 12 (in your opinion how important is preservation for these qualities). By using the clustering method three groups emerged, with clearly distinguishable development- preservation attitudes (Picture 3).

The characteristics of particular groups were established from cross-referencing with other questions and establishing differences between mean values (or frequencies) of answers by groups (a summary of characteristics is in table 1).

3.4 Cognitive map

The first analytical step is the »adaptation« of maps for further computerised application, digitalisation. It was done by using the tool ArcView, whereby each outlined area was intraduced as a polygon with an identification number from the questionnaire and attribute of land use. Picture 4 shows all the areas of particular categories, as seen by the inhabitants.

The cognitive maps were then joined into one map for each interest group, so that they were added and normalised on a five-level scale (Picture 5). We thus obtained a map that shows how valuable/degraded particular areas in the municipality are for particular interest groups.. The scale of value/degradation corresponds to the number of individuals giving an equal grade. As can be seen by visual analysis differences between particular groups are significant. By normalising the results we managed to a certain extent to avoid differences caused by varying numbers of individuals in particular groups, but it became obvious, especially for group 3, that we covered less ground because of their small number. Nevertheless we can establish that the groups have different ideas about necessary preservation and degradation in Komenda. When asked about the most valuable areas, deserving preservation, the first group, similarly as in the written part of the survey, proved to be most indifferent. The greatest differences are between groups two and three, especially concerning the importance of preserving urban, natural or agricultural land. While group two maintained that the most valuable land are certain urban areas and areas of preserved nature, group three emphasised the higher value of agricultural land (Picture 6, present land use). Similarly as can be seen on the map showing degradation, where group one saw certain roads and urban nodes as degraded, the answers of group were scattered and .also included some agricultural areas. The answers of group three were different; they stated that degradation was limited to certain places in the urbanised areas and roads.

Evidently when evaluating the physical environment different groups use different criteria tied to physical characteristics. We tried to check such findings by trying to discern

Table 1: Summary of the characteristic population groups in Komenda

	A. »conservative«	B.»urban«	C. »agricultural«
Demographic characteristics	Somewhat older	Younger, more women, better educated	Males dominate
Lifestyle - mobility - standard	Very limited mobility, people living in the place for a long time, less commuters Average - lower, income partly from agriculture	Significant mobility, recently moved to the place, greater possibility of moving, daily commuters Higher, income from non- agricultural activities, mainly don't own agricultural land, higher education	Don't commute to work, born in Komenda Varies; income mainly from agriculture, landowners of agricultural land and forests
Perception of place	Not pronounced	Komenda as a place of craftsmen, preserved nature	More critical
Development interests	Largely inarticulate, but generally low, aligned to craftsmanship and tourism	Liberal, larger emphasis on social standard on one side and market initiatives on the other, greater tolerance for marginal social groups	Mainly agriculture (even intensive) and horse breeding, a lot of attention given to external image of the place
Preservation interest	Largely inarticulate, but in general high	Protection of natural values, but not as protection regimes (parks); wouldn't protect agricultural and, greater recognition of vulnerability	Less pronounced, mainly protection of agricultural land

them from the cognitive map.[2] Our assumption was that the users didn't reach their value estimates on space by analytical cognitive methods (i.e. direct evaluation of particular characteristics of the environment), but by more comprehensive patterns, »concepts« or schemes. Therefore instead of using »dry« data for analysis we used complex criteria (value-based, expert composite models). These models emerged from two basic aspects of evaluation - attractiveness and vulnerability, including:

- **attractiveness of the area in view of construction costs,**
- **attractiveness of the area in view of pleasant living environment,**
- **attractiveness of the area for production activities,**
- **attractiveness of the area for sports and recreation,**
- **vulnerability of living qualities (especially noise),**
- **vulnerability of visible physical qualities,**
- **vulnerability of natural elements,**
- **vulnerability of agricultural potentials,**
- **vulnerability of water resources,**
- **vulnerability of physical cultural qualities**

For the analysis we used the statistical regression method that shows links between attributes. Based on the results a model that describes the emergence of the value estimate can be established (equations 1-4).

The established links can be interpreted in a manner showing that physical space is more valuable and in need of protection (ranking shows the weight of the criterion), if:

- **All respondents**
- **greater vulnerability of spatial cultural qualities**
- **lesser attractiveness for production**
- **greater living quality**
- **greater attractiveness for sports**

- **group A**
- **greater vulnerability of spatial cultural qualities**
- **greater living quality**
- **greater vulnerability of water resources**
- **greater vulnerability of living qualities (especially noise)**

- **group B**
- **greater vulnerability of spatial cultural qualities**
- **greater living quality**
- **vulnerability of natural elements of the physical environment**
- **greater vulnerability of water resources**
- **lesser vulnerability of agricultural potentials**

- **group C**
- **greater vulnerability of spatial cultural qualities**
- **lesser attractiveness for production**
- **lesser vulnerability of water resources**
- **greater vulnerability of water resources**

Obviously differing value origins of interest user groups identified in the written introduction to the questionnaire can be seen also in physical choices. This means that when decision-making concerning physical matters begins, conflicts can ensue. Conflicts can be expected in those areas where value definitions between groups vary the most. These areas can be presented on the map of conflicts (Picture 7).
images are in groups 1 and 2, although the area of mild / potential

A potentially conflicting area is the area where the difference in grades is more than one point, while an extremely area is the area where the difference in grades is more than two points. The maps show that the most harmonised

conflict is fairly expansive and physically dispersed. The conflict between groups 1 and 3 is especially seen in areas around existing settlements and is stronger only in particular places. The most explicit conflict is between groups 1 and 3 distinctly focusing on agricultural land.

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Notes

[1] Preparation of the questionnaire's concept, execution of the survey and design of models was carried out by 4th year students (academic year 2000/2001) of landscape architecture (Biotechnical faculty, Department for landscape architecture).

[2] Only the results for cognitive mapping of preservation definitions are presented.

Illustrations

Picture 1: *Levels of conflict cannot be diminished only with the inclusion of new expert knowledge because of the conflict of values which is the core of disagreement on facts (adapted from Obermeyer 1998)*

Picture 2: *Average values and deviations of answers about the needed level of protection for particular elements*

Picture 3: *Results of the cluster analysis of answers from the questionnaire*

Picture 4: *Areas of preservation and degradation (right) as drawn on the map by inhabitants of Komenda*

Picture 5: *Visual analysis of maps enables reliable jud gement about similarities between maps obtained by graphic addition and normalisation of cognitive maps* ***Picture 6:*** *Present land use of in Komenda in basic ca tegories: built (black), forest (dark grey), agricultural land (light grey)*

Picture 7: *Potential (light) and emphasised (dark) conf licts between groups concerning physical preservation decisions*

Graph 1: *Share of respondents working in Komenda or elsewhere*

Graph 2: *Share of respondents according to source of income*

Graph 3: *Frequency of stated disturbances according to source of income of respondents*

Equation 1: *Preservation model for all respondents*

Equation 2: *Preservation model for group A*

Equation 3: *Preservation model for group B*

Equation 4: *Preservation model for group C*

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