Picture 8: *Design of residential green surfaces from the sixties was successfully continued in the residential estate MS 12/2 in Nove Jarše, Ljubljana (urban design: Stanko Štor, project 1978, 1980, construction 1981). In the layout of the courtyards children's playgrounds and sports grounds are clearly visible, as well as the green surfaces adjacent to the school and kindergarten (source: AB 1984: 15).*

Picture 9: *Twenty years later the green surfaces in the MS 12/2 estate still serve their purpose. The upper picture shows one of the playgrounds in front of an apartment block, the lower shows the kindergarten's area. The outcome of proscribed minimal playing surfaces for children was in this case a large park - playground next to the relatively small kindergarten building. During the day these areas are used by children from the kindergarten and by older children from the estate in the afternoons, but also children from the new residential buildings built recently on the outer edge of the playground.*

Picture 10: *The structure of the estate BS - 7 Ruski car (urban design: Vladimir Mušič, Marjan Bežan, Nives Starc, competition 1966, plans 1968, construction 1970 onwards) can be compared to that of Nove Poljane. The central area between the apartment blocks is the roof of the basement garage; it is mostly paved, with greenery provided by trees growing from ventilation openings and grass surfaces. However the need for a green living environment is provided for in one of the largest parks in Ljubljana's neighbourhoods, which could easily be classified as a public city park. Such a park in prevailing market conditions cannot be built without municipal intervention (and financing).*

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Maja SIMONETI Darja MATJAŠEC

The landscape of the Sava riverbanks

Opportunities for the development of protected areas

1. Introduction

For various reasons the riverbanks of the Sava River in Ljubljana have remained marginal. The present lack of programme is therefore a large development challenge. Nevertheless issues about advantages and threats concerning development of still protected areas do emerge. The idea presented in this article seeks answers in the concept of the wider area, which should become the measure for evaluating the suitability of particular projects. The proposal calls for a planning approach and amongst other argues for protection as an effective development strategy. The presented concept is strongly marked by relations between the city, river and hinterland and the relations between areas with protected landscape qualities and programme development areas.

The riverbanks are connected with a circular recreation path enabling experiences of the river and riverbanks, as well as connecting various programmes. The distribution of programmes follows balanced distribution of programme cores positioned along the path; on the city's side of the river (the right bank) programmes for daily recreation of the inhabitants is proposed, while on the opposite bank further away from the city, larger interventions and projects are proposed, suitable for large numbers of users from the wider hinterland. In the concept areas of protected nature and landscape characteristics are defined as programme areas with equal bearing as other development areas. The proposal addresses strategic questions concerning physical development and provides guidelines and directions for future planning.

2. Ljubljana also a city by the river Sava[1]

Ljubljana is a city lying on two rivers, Ljubljanica and Sava. The banks of the Sava are incomparably less connected with the city's development than those of the Ljublanica River. Floods, protection of water resources and energy potentials has all diminished the attractiveness of the Sava riverbanks for urban development. The space where it meets the Ljubljana Valley has stayed preserved as an expansive natural hinterland of the city, similar to the Barje (marshes) in the South.

The vivid attraction and expanse of the riverbank space is becoming increasingly interesting for development initiatives. Use of the space is presently limited, both physically and socially and in view of programmes. Only few places on the riverbanks are accessible and can be used, the river water isn't suitable for swimming. The space as such is the-

refore unpredictable and not safe enough for use. The lack of programmes allows contents that aren't feasible or permitted elsewhere. Informal development is one of the dangers. Issues stemming from independent development can be much larger and with permanent consequences.

The relatively weak connections between the whole area and urban development of the city in the past are today seen as potential advantages. The area along the river Sava is one of those areas in Ljubljana, that are still waiting to take upon themselves pertaining roles in the city and city life. How will the area's development potential be used also depends on planning-design guidelines and consequent responses from the local authority. Comprehensive planning of the river space is generally neglected because of individual demands. When »jostling for space« particular investors are more aggressive and successful than promoted public interests in matters of river management concerning special ecological and city building elements, especially because management of the river and surrounding area cannot express direct profit. Investments are needed, while the profit is seen as better quality of life and only indirectly, in the long run, even in marketing of public property.

Great expectations tied to spatial potential are often not met. One of the reasons is the lack of previous articulation of use and image. Development potentials given to a certain area are not its features, such as gradient or vegetation. They are a matter of social interpretation. Spatial potentials emerge from the relation between spatial evaluation and balancing uses and interests in the physical reality. Debates on spatial potentials in practise are often simplified on decisions concerning particular developments, various extents of environmental, spatial and social impacts. Effects of particular development are seen as degraded areas devoid of content, programme or design superstructure, thus becoming socially mute, lacking social superstructure, public and common programmes that could transform them from functional environments into living ones (Simoneti 2000).

The municipal department for urbanism commissioned us to produce expert guidelines for the management of the river Sava and surrounding areas, the idea being to prevent the practice of unpredictable futures and partial decisions. Preparation of the long-term development concept and formulation of previous measures for development are the basis for harmonising decisions and complementary actions.

3. Development goals and starting points

The aim of the commissioned expert guidelines was to define the rationale for comprehensive management of the Sava river area in different time scopes, i.e. short-, mid- and long-term. The rationale should facilitate the desired physical and programme integrity of the area and enable responses to individual development initiatives. Only a complex set of guidelines, that would professionally evaluate the Sava river area in the ecological, sociological and morphological sense can offer the backbone of any planning documents. The goal can be achieved if the guidelines are adopted with wide consensus. Preparation of expert guidelines is one of the preventive measures that can in conjunction with strong determination lead to a more acceptable physical condition. Exchange of guidelines and principles has to be ensured already on the conceptual level, followed by adopted longterm directives to particular development acts. General legal proscriptions are thus complemented with professional guidelines concerning preservation and development on the real physical level and to benefit the river's space. Simultaneously guidelines for control of the condition and particular developments are ensured.

The project was executed in several working phases. The inventory phase of initiatives and needs was followed by an analysis and the formulation of a general development concept. It specifies the method of activating the whole area with simultaneous respect for nature protection criteria. The concept is the starting point for any dealing with the river space in long-term planning and detailed development plans. These phases were followed by a management concept in two proposals. In view of the possible damming of the river for hydroelectric exploitation the proposals are somewhat different, but nevertheless complementary. They were designed as two phases of development in the Sava river area. The project was completed with further structuring of the area into twelve homogenous areas for each of which detailed conditions and measures concerning development were specified. Thus the project was harmonised with the commissionaire's expectations, after all it presented guidelines for immediate evaluation of any development initiatives.

The project summarises all known limiting criteria and applies them to the conceptual layout. The final programmes and contents of uses are intentionally left out because of the guidelines states that all decisions are subject to general consensus, which are beyond the influence of planners. The project however presents a management method in which the suitability of different development initiatives for different sites can be established and how they can be joined into a comprehensive arrangement. Final decisions are left to environmental preservation assessment and decisions tied to specific development plans, inevitably needed for any action.

The analytical phase of the project again proved that during the course of the project the limits of the area under investigation have to be adapted to the contents. When searching for ecological connections and ties with the city, the area is much more expansive than when structuring the Sava river area for detailed planning or design. From the aspect of water resource management the limits are again different. Maybe these floating limits of the river's influential area are the reason, why the river doesn't have its own planning territory in present planning documents. Particular areas are formally divided in different ways, with the limits once following the river's axis or either riverbank. Such structuring doesn't benefit comprehensive management, therefore it is essential for operative needs to ensure such structuring that respects harmonised guidelines. In the past problems in management of Sava river areas have often been pointed out and in Ljubljana the practise of comprehensive approach to rivers and streams has been successfully followed, at least in early analytical planning phases. The idea is also promoted in the proposed new Law on water (Simoneti, 1989, 1998, Simoneti / Kučan 1997).

The professional guidelines defined in the project are devised on two levels. The first is the wider level, dealing with principles, which have to be sensibly applied to the whole area. The second level is defined on findings of established

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characteristics, management regimes for the Sava river area and other adopted guidelines that have been translated to guidelines for management of particular issues of the whole area or its particular parts and will be elaborated and shown as acceptable later. In the structural development and programme sense the project presents a proposal, which will have to achieve wider professional debate and approval.

The principle guidelines were derived from the hypothesis that the Sava river area has to be a high quality, natural, cultural, diverse and dynamic city element with specific urban, social, and ecological functions. Principles described in the project as constantly binding were:

- the principle of harmonised planning with programme and structural characteristics or potentials in the Sava river area: for every new development with content and structure the programme, social and ecological capacity has to be checked, especially when they are directly tied to programmes dealing with water;
- the principle of continuity: every new change of content or structure has to be harmonised with natural and man- made characteristics of the Sava river area up- or downstream on both riverbanks, on the riverbanks themselves and in the hinterland;
- the principle of preservation and development of the Sava river area: every development initiative has to be based on respect of natural features; development that respects the principle of comprehensive management and particularities of separate sites implies an effective type of preserving the Sava river area;
- the principle of public use of the Sava river area: management of the area is at least in certain aspects also management of public surfaces or surfaces in pubic use, meaning the centralisation of buildings and arrangements of public character, as well as ensuring permeability and accessibility to the riverbanks, despite the nature of land ownership, which is a minimal measure to ensure public use of the Sava river area and its functions in view of preservation of natural potentials;
- the principle of sustainable planning: for every development possibilities have to be found for improving existing conditions of water and land ecosystems, as well as preservation and improving of areas with ecological and physical potential;
- the principle of compatibility of programmes: every development, albeit large or small, can have damaging effects on the natural and social environment and is thus more or less acceptable both in view of its programme or physical aspect; when assessing effects on the natural, living or social environment, the principle of least damage has to be respected;
- the principle of comprehensive management in planning documents: management guidelines have to be included on all levels of planning documents, from planning acts to permitting; the fact that the Sava river area is an important element of the green system and master plan has to be observed; management of specific areas has to be grounded in idea solutions obtained through public competitions.

4. Conceptual framework

The proposed concept for management of the Sava river area merges the key guidelines for detailed concepts of physical development in the whole area, including aspects of natural and manmade characteristics, protected elements and development possibilities. The concept is based on the idea of separating the inner, urban and external, regional riverbanks, connected by a circular recreation path. The almost 30 kilometre path with a series of programme points, nodes and centres manifests the expanses of the Sava river area.

The bearing element for activating the physical potentials of the Sava river area is the circular path running on both riverbanks. The path is envisioned as a multipurpose recreation surface, enabling the experiencing of the river and riverbanks with simultaneous possibilities for using almost 30 kilometres of different maintained surfaces allowing choice of paths of various lengths. The path is basically designed to enable use by pedestrians and cyclists. It is marked and adapted to allow choice of direction in view of the users available time. Part of the path is paved and the circle can be used with different equipment, such as roller blades, skateboards etc. Independent of the path is a circular path for equestrians. The new path is connected to the existing path of memories and comradeship.

Furthermore the concept is based on the idea of connecting spatial qualities and thought out distribution of use. Distribution of programmes follows the idea of right, urban ri- verbank and left, hinterland riverbank, tying the city to other settlements and natural surrounding hinterland. Programmes are positioned in a manner whereby the programme points, as the simplest type of programme, are strung in a rhythm along the new path.

Programme centres with urban character are distributed on both riverbanks. Only on the left, regional bank, programme centres with wider significance are proposed. A speciality of the concept is the guideline that homogenous areas of preserved landscape features are integrated in the concept as programme areas. Because of the physical characteristics of the area, spaces of active preservation are distributed on both sides of the river.

The resting places strung along the path, the basic programme points, are thirty-minute walking distance or two kilometres apart. The idea is to provide users of the path, separately or together with one of the more elaborate programmes: shelter from atmospheric inconvenience, public lighting, resting places and if possible, public toilettes and emergency telephones.

The programme nodes are on one hand connected to existing vital programmes and on the other prepared to take over new initiatives for establishing new nodes. While the programme points are positioned along the path, programme nodes are typically positioned on the edge of the existing settlement, near the water and in in-between spaces. They differ significantly. Such a node can be an eating-place, already operating and stimulated by the concept to open up into the Sava river area thus enabling initiatives for connecting the whole area into a large attractive leisure space for the wider surroundings. Such a node could also be a swimming facility on the Sava River.

Programme centres are the highest level of new programmes in the Sava river area. Typically they exceed the needs of the city's population and their offer can attract visitors from elsewhere. Such programmes are various sports facilities, entertainment parks and similar programmes with all necessary supplementary programmes, such as parking, guesthouses, catering, information centres, exhibition pla-

ces etc. Programme centres are development on the grand scale, which should be developed according to detailed planning documents, similarly as programme nodes should. Because of the exceptional quality of the area, procurement of proposals should be carried out after variations are obtained (various forms of competition). Programme centres are not essential for activating the river area's potential. They are nevertheless a logical continuation of the process of gradual placement of new uses in the area. Because of the scope of these developments, they should be introduced gradually, with respect to environment protection and design assessment.

In view of the spatial potentials the concept proposes five programme centres: Tacen, Tomačevski prod, Jarški prod, Šentjakob and Sotočje. From the stated aspects and territorial distribution they are the most suitable sites for developing such centres, but not the only ones. The sites are tied to the traffic entrances to the city, therefore some of them could move to the urban, right riverbank. Similarly one can predict that because of other circumstances some of the »vacant spaces« in the concept could become interesting for development. However, if centres will be positioned elsewhere, on other sites, guidelines specifying distribution, harmonised positioning, significance, the concept of centres should be adapted to new decisions.

The character of proposed centres is varied. The basis for the centre in Tacen is the existing programme of white water sports. In the future it should be sensibly complemented with additional programmes. The programme centre Tomačevski prod can have an urban park character, because of its emphasised ties to the city. From the urban point of view its development is limited by protection of water resources

- 2nd protection belt and extant informal use - allotment gardens. The programme centre Jarški prod is attractive because of easy accessibility and vastness, thus enabling programmes, which need substantial surfaces for their operation. The presence of forests and shrubs on one hand allows high quality placement of programmes, but also demands protection of the riparian forest. Even here, similarly as in Tomačevski prod, water resource protection has to be respected. The area between Šentjakob and the river is seen as a potentially acceptable site for a programme centre because of good access (upon completion of the highway). It also lies beyond the strictly protected water resource belt. The centre should be designed to preserve key features of the natural environment and cultural landscape. Sotočje (orig. slov. confluence of rivers) as a programme centre was proposed because of the exceptional geomorpholo- gic phenomenon (four rivers meet) and experiential values. Its design has to be subordinate to natural characteristics with buildings placed in a manner, which respects the scale and character of the place, probably in the wider hinterland of the area. The centre should be seen as an inter-munici- pal project because of ties to the area along the Kamniška Bistrica River and downstream course of the Sava River.

5. Recollection before decisions

Today the Sava river area can be seen as an expansive, relatively well preserved natural space, with an increasing quantity of programmes representing a varied leisure offer and using natural contents and physical possibilities. Since the whole area is typified by a general lack of recognisable management, which could supply conditions for psychological and physical safety, the area is much less used than its capacities and characteristics provide. After all, such an »empty« space is also the place of degradation, intolerable privatisation of natural resources and also less acceptable development conditioned solely by land ownership and less with general goals of managing the Sava river area.

The analysis of its attraction for leisure activities showed that the Sava river area is considered one of the top ten major recreation areas in Ljubljana, whereby its physical extent and landscape diversity put it in the forefront. Its territorial position makes its characteristics extremely significant even in the sense of ensuring ecological balance. From the Sava River ecological ties reach southwards across the city to Barje (the marshes) and onwards to the suburbs.

Activating the area along the river is a development adventure that has all possibilities for establishing new living qualities, as well as diversity of programmes for the wider urban area. Thought out development, which is subordinate to common goals, can in the sense of programme become a new development direction for the city, marked at the turn of the millennium by quality rather than quantity, offer of services rather than direct production.

The elusive image of emptiness has to be understood as a different content and based on acceptance of this difference as part of urbanity, direct physical development. One of the key issues in the project was that the Sava river area is a large natural entity that will luckily be reached by development in a time when possibilities for unacceptable environmental and physical solutions are much lower than they were in the past. Professional capability and responsibility demand comprehensive thought-out development, development with simultaneous preservation, a conscious public monitoring development and preventing quick and overbearing changes. The project is derived from the rationale of protective planning, that isn't akin to preservation as such, but is a vehicle for finding best, environmentally acceptable development solutions. As can be seen from the concept, prepared on such a rationale, the main issue is balancing between particular developments and protected elements, thus leading to harmonised development.

The diminished self-consciousness of physical planning has in the last decade left its mark in various spaces of physical suitability, even because of reservation stemming from the relationship between planning as an instrument of ensuring public and common interests and land ownership as the condition for ensuring private and partial interests. Development is increasingly measured in better and broader qualities of living conditions. Even occurrences in the Slovenian planning practise will undoubtedly shift towards the direction, where ensuring expected physical qualities in the long run and dominance of public over private interests will again become more important. The method of approaching problems by the municipal authority in decision making about development in the Sava river area shows that sporadic decision making needs a sound basis in defined measures, a change of which many professionals are becoming aware of. Fears that knowledge and possibilities offered by physical planning are surely unneeded.

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Note

[1] More about the Sava Rivers' space and riverbanks can be found in the project: Jankovič, K., Matjašec, D., Simoneti, M., Mlakar, A. (2001) The riverbank landscape of the Sava River, expert guidelines for the new long-term plan of the Ljubljana municipality, LUZ d.d. Ljubljana, commissioned by the Municipality of Ljubljana.

Illustrations

Picture 1: *The main path with lateral connections and sites of programme and service points enables visitor's choice even in view of distances (or time) of passage thorough the river's space. Places where the largest number of possibilities overlap in view of distance (or time), have the largest intensity of programmes and vice versa, in correspondence to larger areas intended for preserving nature.*

Picture 2: *The system of paths with varying distances and possible structure of users.*

Picture 3: *Structure of homogenous areas in the river's space*

Picture 4: *Distribution of programme centres, nodes and points*

Picture 5: *Time phasing of development in the river's space.*

Picture 6: *The structure of homogenous areas in the river's space.*

Picture 7: *The character of homogenous areas.*

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Aleš BIZJAK
Matjaž MIKOŠ

Renewal or rehabilitation of urban river and stream corridors

1. Introduction

Urban environments are anthropogenic disturbances in the landscapes ecological structure, composed of matrix, corridors, patches and mosaics. The built urban environment and physical tensions affect the ecological and morphological state of river and stream corridors (e.g. changes in corridor dimensions and shapes and their integral parts). Simultaneously river and stream corridors are transmitters of effects of development in the influential areas of watercourses in the urban hinterland, e.g. regulation of water course and building on their retension surfaces. Usually the consequences of such effects are unpleasant or even hazardous for the urban population, such as flooding of the Southern parts of Ljubljana caused by the Gradaščica River.

River and stream corridors have numerous functions amongst other they are hydrological, aesthetic, sports-re- creation, social etc. In urban environments, because of population density, settlement and other factors specific to urban environments, their importance rises with the growth of possible uses and interests (inhabitants, riverbank dwellers, fishing, sportspeople, nature conservationists etc.) and with the status of public space given to the corridors. Therefore it is important to manage these corridors in a way, whereby they can be preserved or even restituted to their ecological and morphological pattern as much as possible, even when complying to expectations and demands of interest groups (Bizjak, 1997, 1998; Mikoš & Kavčič, 1998 / a, 1998 / b, 2000).

2. Urban rivers and streams - renewal or rehabilitation?

The hydrological network in the Municipality of Ljubljana is composed of the two main rivers, Ljubljanica and Sava, and several smaller rivers (Pržanec, Glinščica, Horjulka, Gradaščica, Mali graben, Mestna Gradaščica, Ljubljanica's urban part and the Gruber canal, Sava, the Barje streams, Veliki Galjevec, Dolgi potok, Bizoviški potok, Rastučnik, Breška, Gobovšek, Dobrunjščica, Betežica, Šivnik, Besnica with tributaries, Bajer, Stara voda, Črnušnjica and Gameljščica, as well as numerous streams (Mikoš & Kavčič, 1998 / a, 1998 / b, 2000). Many of them are subject to troubles, typical for urban rivers. They are usually severely changed, becuase of increased settlement density and infrastructure in their influential areas, but also along their banks (Zum- broich in dr., 1999). Research on their level of morphological naturalness (Vodnogospodarski inštitut, 1994, 2001) has alarmingly pointed out the poor morphological state of smaller rivers, especially in the Western parts of the municipality (e.g. Pržanec, Glinščica, Mali Graben, Mestna Gradaščica, Bizoviški potok). Graph 1 shows the level of naturalness of rivers and streams in the municipality as compared to the conditions in Slovenia.

The poor morphological state of urban rivers and streams is a consequence of former river management approaches typical for urban environments and seen as: consolidated and monotonous riverbed, fortified riverbanks, monotonous materials, disconnected riparian vegetation, rarely present retro-riparian vegetation etc. However it is important to distinguish between different types of river management (e.g. Ljubljanica in its course through the city core, Drava in Maribor and Ptuj, Savinja in Celje and Laško etc.), that have often degraded the river in the ecological and morphological sense, but not necessarily from the aesthetic aspect; monotonous management of rivers in suburban and urban environments (e.g. Pržanec, Glinščica, Mali graben, Mestna Gradaščica) or misuse of riverbanks with detached housing and other forms of illegal or semi-legal uses (e.g. Rakova Jelša).

In view of improvements to the ecological state of rivers numerous approaches are known worldwide. One must however distinguish between *»river restoration«* **and** *»river rehabilitation«* **(Wells et al., 1998). Both approaches present processes for improving degraded river regimes or hydrological functions in the influential area of a river by implementing technical and biological engineering measures in the river corridor. They differ in physical demands or demands for allocating areas, technologies, necessary labour and re-**