

working in the countryside, including management and rehabilitation of village settlements (Miladinović, 1997). Re-parcelling is seen in some countries as an extreme measure for the implementation of pending goals of land and development policies, thus they are done democratically and with extreme sensitivity. If we want to do the same in Slovenia, changes in the legal, financial, organisational, and technical sense will have to be brought about.

Some experts claim that we will be challenged by many tasks on our way to Europe. Even the tasks presented in this article aren't simple, but they could be carried out faster, if there would be more respect for professional and scientific approaches and if there would be more dialogues between particular creators of departmental and integral policies. Tending ones' garden is fine for the individual, but bad for the community.

Anton Prosen, Ph.D., geodesist and communal engineer,
University of Ljubljana, Faculty of civil engineering and geodesy,
Cathedra for spatial planning
E-mail: aprosen@fgg.uni-lj.si

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Aleš BIZJAK
Matjaž MIKOŠ

Slovenian and European legal stipulations concerning protection and rehabilitation of river corridors

1. Introduction

Management and care for rivers and streams are part of the activities tied to water management, which are typically divided between societal development interests, such as management of water regimes for the protection of life and property before contingencies, the provision of potable water, needed for sustaining the population, the provision of technological water needed in production processes, and environmental protection demanded by society, which is becoming increasingly aware that natural and slightly changed man-made river corridors are becoming rare ecological landscape structures, which need protection or renewal if necessary. By applying water management actions and measures (e.g. regulation of riverbeds, flood control measures and improvements to agricultural land in influential areas of river corridors), which societal development constantly demands, we have in fact changed the hydro-morphological dimensions, patterns and natural substances of numerous river corridors, but mainly relieved rivers and streams off their influential areas of hydro-morphological processes along the riverbeds. Therefore contemporary

doctrines of managing surface waters are proposing the returning of formerly taken surfaces along the riverbeds back to the domain of hydro-morphological processes within the river corridors.

New scientific and expert findings about care for river corridors and the demands by civil society for environmental protection and active participation in decision-making about environmental and spatial issues led to new legal definitions for the field of watercourse ecosystem protection and rehabilitation of rivers and streams. They were stipulated in the European water directive: Directive of the European Parliament and of the Council establishing a framework for Community action in the field of water policy (The European Parliament and the Council, 2000). The mentioned categories were legally defined also in Slovenia with the Law on environmental protection (1993), Law on preservation of nature (1999) and finally Law on water management (2002a). We have to point out that the Law on water management had to undergo a decade of preparation, during the nineties of the last century, i.e. during the period of creation of the EU water directive. Preparation of the Slovenian law triggered a wide professional discussion even in the field of establishing water surfaces (Mikoš, 1994; 1995a; 1995b), and simultaneously saw the transition of foreign experiences to practise in rehabilitation of rivers and streams (Mikoš and Kavčič, 1998a; 1998b; 2000).

Reintegration of lands in influential areas of former river corridors predicts changes in ownership and use of riparian lands, therefore besides efficient environmental guidelines and water management and ecological engineering provisions and planning, stipulated in the previously mentioned laws, adequate integration in planning acts is also essential, as stipulated in the Law on spatial management (2002b). Execution of river corridor rehabilitation is stipulated in the Law on building (2002c).

2. Triggering legal regulations concerning rehabilitation of river corridors

The fundamental legal provision specifying rehabilitation of river corridors is article 102 of the Law on water management (2002a), which proscribes improvement of hydro-morphological conditions of surface water and renewal of hydro-morphological processes in river corridors:

Article 102
(Improvements to hydro-morphological conditions of surface water)

- (1) *Because of desired improvement of destroyed natural balance in water and riparian eco-systems of surface waters and poor water conditions, above all on artificial and significantly changed water bodies, the state also ensures execution of measures for improving the dynamics of natural water processes.*
- (2) *Measures for improving the hydro-morphological condition include rehabilitation and reestablishment of structure and form of a water body, which affect improvements to its' chemical and ecologic condition.*

Physical planning within the bounds of law

- (3) *A water body, on which measures from the first paragraph of this article have to be executed, is defined with a programme of measures, as stipulated in article 57 of this law and should be shown in the water management plan.*

The spatially most intensive measure for improving the hydro-morphological condition of surface waters or rehabilitation of river corridors with consequences on ownership and use of surfaces is the reintegration of formerly taken lands into the river corridor. The terms water and riparian surface are defined in articles 11 and 14 of the Law on water management (2002a), which amongst other stipulate:

Article 11

(Water surface of continental waters)

- (1) *Surfaces, on which continental water is permanently or temporarily present, thus causing specific hydrological, geo-morphological and biological conditions that determine the water and riparian ecosystem, is the water surface of continental water (in continuation: water surface).*
- (2) *The water surface of flowing water includes the water's main riverbed, including the riverbanks, all the way to evident geo-morphological changes.*
- ...
- (4) *Amongst water surfaces are also included abandoned but occasionally flooded riverbeds and sandbanks, swamps and lands, which were flooded because of other physical developments.*
- (5) *The owner of a water surface can be a person of private or public law.*
- (6) *The minister proscribes the details and method of defining limits to water surfaces.*

Article 14

(Riparian surface of continental waters)

- (1) *Surfaces, which lie on the boundary of water surfaces, are riparian surfaces of continental waters (in continuation riparian surfaces).*
- (2) *The external boundary of riparian surfaces reaches 15 metres outwards, from the boundary of the water surface on first order rivers and streams and 5 metres from the boundary of water surfaces for rivers and streams of the second order.*
- (3) *Riparian surfaces are also all surfaces between high-water dykes.*
- (4) *Despite the stipulations in paragraph 2 of this article, the government can define different outer limits of riparian surfaces, if needed, because of:*
1. *Protection of waters, water and riparian ecosystems,*
 2. *Water management,*
 3. *Conduct of public services according to this law,*
 4. *Enabling general use of the water or maritime commodity.*

Waters of the first order are defined in the Supplement to the Law on water (2002a). Paragraph 4 of article 14 of the stated law therefore stipulates that the government can determine larger or smaller outer limits of riparian surface, i.e. it doesn't necessarily have to be 15 or 5 metres from the limit of the water surface.

3. Ties between river and stream planning and spatial planning

Measures for improving the hydro-morphological condition of surface waters, abiding to article 102 of the Law on water (2002a), are determined with the Programme of measures (valid for six years) stipulated in article 57. The programme has to be shown in the Water management plan. Water management plans for the Danube and Adriatic Sea watersheds (valid for six years) from article 55 of the Law on water (2002a), whose rationale is stated in the National programme of water management (valid for 10 years), which is founded in article 54 of the law, and detailed water management plans (valid for 1 year) as stipulated in article 60, are documents of river and stream planning of management of surface and subterranean water bodies and for ensuring sufficient quantities of potable water with suitable quality.

The Law on spatial management (2002b) defines physical planning with national planning acts on the national level (articles 37, 38), joined planning acts on the regional level (article 48) and municipal planning acts on the municipal level (articles 57 and 63). From the aspect of level of management, the law defines the instruments in national location plans (article 43) and municipal location plans (article 73).

With respect to the provisions of article 62 (Law on water management, 2002a), when preparing a planning act (national or municipal location plan) or departmental plan, the responsible person has to abide to provisions, limitations and conditions from the Water management plan. Based on such a planning act, which provides for the rehabilitation of river corridors, in view of provisions in article 22 (legal pre-purchase right of the state) and 38 (limitation and expropriation of ownership rights on water surfaces) in the Law on water management (2002a), surfaces for executing rehabilitation have to be obtained by limitations or expropriation.

4. Administrative procedures, execution and maintenance of rehabilitation areas

After establishing the new ownership structure of water and riparian surfaces on a selected section of the river corridor the administrative procedure for obtaining the building permit for planned rehabilitation actions in the river corridor can begin. The administrative procedure depends on the order of the river or stream on which rehabilitation is planned. In the case of planned rehabilitation actions on a river or stream of first rank, as stipulated in article 8 of the Supplement to the Law on water management (2002a) and according to article 55 of the Law on building (2002c) the application for building permit has to contain only the location information with details about land use, conditions

from municipal planning acts and spatial measures according to article 80 of the Law on spatial management (2002b) and article 42 of the Law on building (2002c), as well as the draft project of the planned river corridor's rehabilitation. In the case of rivers and streams of the second order, provisions from article 50 and other articles of the Law on building are applied.

Execution of rehabilitation of a river corridor can ensue after the obtainment of environmental protection concordance, if demanded for the proposed development, according to the Law on building (2002c) and the administrative procedure of obtaining a building permit has been completed. According to article 4 of the Law on water (2002a) rehabilitation is commissioned by the state, while according to article 98, rehabilitation and maintenance of lands of the renewed river corridor are carried out by economic public agencies with granted concessions. Articles 99 and 100 furthermore determine responsibilities of local communities and responsibilities of owners of water or riparian surfaces. The procedure for obtainment of a permit for usage of the renewed river corridor is stipulated in the Law on building (2002c). Purchase of water and riparian surfaces needed for the rehabilitation of the river corridor are, according to article 162 of the Law on water management, financed from resources of the Water fund.

5. Regulations in the EU water directive

In year 2000 the European Parliament and European Council adopted the Water directive, i.e. Directive of the European Parliament and of the Council establishing a framework for Community action in the field of water policy (The European Parliament and the Council, 2000). It was founded on the provisions of the Treaty Establishing the European Community, signed in Rome in 1957, above all article 174, chapter IX (environment), which amongst other specifies that the Community's environmental policy has to benefit achievement of goals on preservation, protection and improvements to environmental quality by sparing and sensible use of natural resources. Similarly, environmental policy has to be based on the precautionary principle and principles of preventive actions, while environmental damage has to be primarily repaired at the source of rectification and funds returned according to the »Polluter pays' principle«.

In EU member states, but above all in accession countries, the common European legislature has strongly influenced provisions and demands of laws in particular countries. The water directive, which is the fundamental legal backbone of common European law for water management and includes wider aspects of legal water protection and water management, as stated in the Treaty establishing the European Community from 1957, is no exception. Even The Slovenian Law on water management (2002a) in many aspects of water management takes over demands and expectations of the water directive on member states – signatories of the treaty. The purpose of the water directive is to establish the protection framework for continental surface water (all standing or running water on the land's surface), estuaries, coastal sea and subterranean water, which should amongst other, prevent further degradation of conditions, protect and improve the condition of water ecosystems and those of continental ecosystems and swamps that are directly affected

by water ecosystems, but also diminish consequences of floods and droughts.

The stated water directive's purposes add to assurance of adequate quantities (reserves) of quality surface and subterranean water, which are needed for sustainable, balanced and just use of water, diminishment of pollution of subterranean water, protection of territorial and seawater and the achievement of goals of international agreements. One of the basic demands and obligations of member states, as stated in the directive and written in Preamble 26 and article 4 (environmental goals) is that member states have to achieve at least good water status of surface and subterranean waters, which should follow defined and implemented measures within a comprehensive programme of measures. If the conditions of surface and subterranean waters are good, then it should be maintained, otherwise it should be achieved in a maximum of 15 years after validity of the directive, i.e. by 2015 (The European Parliament and the Council, 2000). Scheme 3 presents a chronological overview of obligations, proscribed to member states by the directive, from the beginning of validity in 2000 onwards.

Good condition of surface waters implies a condition of the water body of the surface water, when its' ecological condition (expression of quality of structure and operation of the ecosystems tied to surface waters) and chemical condition amongst very good, good, average, poor or very poor, as normatively determined by Supplement 5 to the water directive, are at least good. Supplement V to the water directive specifies elements of quality for determining ecological conditions of surface waters (rivers, lakes, estuaries, coastal sea and artificial and largely changed water bodies), which are divided into biological elements and hydro-morphological elements and chemical – physical elements that support biological elements. The ecological condition of surface waters is therefore dependent on the level of elementarity or preservation of ecological elements of quality.

From the aspect of rehabilitation and clearing of the hydro-morphological condition of river corridors the most important elements of quality are: hydrological regime (quantity and dynamics of the water-flow; connections to water bodies), continuity of flow and morphological circumstances (changing depths and widths of rivers and streams, structure and substrate of the riverbed, structure of the riparian belt). The properties of hydro-morphological quality elements, which are specified in the Water directive are some of the variables of the hydro-morphological process in the river corridor that are used for evaluating the hydro-morphological condition of river corridors. In general we can establish that in preserved sections of river corridors the typical properties are: unobstructed quantity and dynamics of the flow, connections to water bodies along the corridor and under it, changing depths and widths of the riverbed and width of the corridor, diversity in riverbed structure and substrate and rich structure of the riparian belt. Natural preservation of the river corridor is also typified by continuity of flow and permeability: the river corridor is not obstructed in the cross section by buildings (e.g. dams), that could significantly affect the transport functions of material, energy and migration of organisms or animal types longitudinally along the river corridor.

In the EU context the Guidance standard for assessing the hydro-morphological features for rivers (CEN, 2002), has to be mentioned. The standard is in its' final – harmonisation

phase and it specifies methods, demands, hydro-morphological parameters, procedures and methods of field measurements, forms and methods of reporting and presenting data and providing quality for evaluation of conditions of hydro-morphological phenomena.

6. Public participation

Democratisation in society and the rise in awareness amongst the public about possibilities for decision-making and necessary participation in such processes are mirrored in the Law on water management (2002a), which specifies public participation from two aspects. Article 58, whose content ties with article 14 of the Water directive concerning informing the public and mutual consultation, stipulates compulsory public participation during preparation of water management plans. The article defines information dissemination (Council for water, local communities along the area, persons that have permanent residence or head-offices in the area) about purpose and beginning of preparatory phases of the plan, at least three years before planning begins for the given area, active participation of the mentioned publics in the creation of the management plan, informing the public about conduct and development of activities, accepting comments and proposals from the public during preparation of the management plan and public accessibility to documentation.

The second aspect of public participation stipulated in the III. part of the Law (Organisation of water management) in article 163, which demands the establishment of »water conferences« in particular areas. Their purpose is to ensure influence by the local communities, holders of water rights and non-governmental organisations on water management. Members of the conference are local communities from the area, holders of water rights in the area and non-governmental organisations dealing with water management and environmental protection. A similar body, i.e. spatial conference, is stipulated in article 28 of the Law on spatial management (2002b).

According to American experiences (Foggs and Wells, 1998), the most suitable form of participation in river corridor rehabilitation were non-governmental organisations, in which for example interests of owners of water and riparian surfaces meet. With the help of the institution of non-governmental organisations they can express their interests and expectations concerning ensuring safety, use and maintenance of surfaces in the influential area of the river corridor, while simultaneously acting as an organised discussant with the state or local community that are running the procedure or rehabilitation.

7. Necessary expert guidelines for rehabilitation of river corridors

The fundamental expert basis for rehabilitation of river corridors in the Slovenian hydrographical network, which is in view of administrative, technical and time demands the mid-term goal of domestic water management, is the map of rehabilitation measures for suitable water and riparian surfaces in the Republic of Slovenia. The map of suitability has

to be produced at least from the water management, hydro-morphological, landscape, geographic, social and economic aspects in synthesised and sensible entities or sections.

From the aspect of obtaining land for river corridor rehabilitation, besides the length of the suitable river corridor's section, its width is also important, since these two dimensions determine the extent of water and riparian surfaces that have to be purchased for the task at hand. Widths of river corridor vary at least from the aspect of type of river or stream (e.g. torrential, mountainous, hilly, plane) and type of meandering of the watercourse. The type of watercourse is determined by factors of geology, climate, tectonics, relief, fall (gradient) and type of valley (Kern, 1994; Rosgen, 1996). Locally speaking, the river corridor's width depends on the segment of the watercourse (upper, middle, lower flow). Thus inevitably, for any segment of the river corridor, which is suitable for rehabilitation, its width has to be defined, specific to the type and flow of the watercourse. In the Slovenian hydrographical network, because of hydro-morphological diversity, standardised widths of belts along watercourses are not the correct answer.

Furthermore, factors of priority of rehabilitation should be defined, as well as sectors for executing rehabilitation of river corridors for six-year periods, with respect to the duration of programme measures stated in article 57 of the Law on water management (2002a).

For the needs of implementing rehabilitation of river corridors the rudiments of a concept of project management has already been devised (Bizjak and Mikoš, 2001). It will specify the method and sequence of planning, designing and maintenance and management, administrative mechanisms and stakeholders of river corridor rehabilitation, and simultaneously intertwine administrative procedures with technical execution and maintenance of river corridor rehabilitation with public participation.

8. Conclusion

Because of the legal provisions in guideline principles stated in articles 1, 3 and 16 of the Law on environmental protection (1993), article 31 of the Law on preservation of nature, article 102 of the Law on water management and also the EU water directive, i.e. Directive of the European Parliament and of the Council establishing a framework for Community action in the field of water policy (The European Parliament and the Council, 2000), in the future we will have to rehabilitate those sections of rivers and streams, whose river corridors were changed and ecologically degraded in the past because of human needs. We will also have to undertake future measures on rivers and streams with much more premeditation and respect for water ecosystems.

According to the Law on water management (2002a) the commissioning body of water corridor rehabilitation and payee of purchase costs of water and riparian land is the state or the Water fund, while the executive body is an economic public company as concessionary. To achieve quality execution of rehabilitation works certain water management expert guidelines and a routine of project management of rehabilitation works on river corridors have to be prepared, which will ensure correct long-term orientation of such projects (Bizjak and Mikoš, 2001).

The relatively good condition of hydro-morphological preservation of rivers and streams in Slovenia, compared to some West European countries, cannot be the reason for slow action in the field of water corridor rehabilitation, since even in the Slovenian hydro-graphic network, there are surely sections needing rehabilitation. Research of public opinion carried out in England is stimulating and proves that such efforts are well received amongst the general public (Bizjak and Mikoš, 2001; Tunstall et al., 2000).

Aleš Bizjak, M.Sc., landscape architect, prof. dr. Matjaž Mikoš, Ph.D, civil engineer, University of Ljubljana, Faculty of civil engineering and geodesy, Cathedra for general hydrotechnics, Ljubljana
E-mail: abizjak@fgg.uni-lj.si; mmikos@fgg.uni-lj.si

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Illustrations

Table 1: *Review of laws in the Republic of Slovenia and their articles, which directly or indirectly govern protection of water eco-systems, rehabilitation of river corridors, planning of water and spatial planning, execution and financing of rehabilitation, maintenance of rehabilitated sections and public participation*

Figure 1: *Limits of water and riverbank areas in the cross section of river corridors*

Scheme 1: *Linkages between planning of water corridors and physical planning in the Republic of Slovenia, as stipulated by the Law on water and Law on spatial management*

Scheme 2: *The administrative procedure of river corridor rehabilitation on first and second order rivers, as stipulated by the Law on water and Building law*

Scheme 3: *Chronological review of responsibilities stemming from the Water directive for EU member states by year, starting with the directive's validity (2000)*

Scheme 4: *The significance of preserved hydro-morphology and rehabilitation of river corridors from the directive's viewpoint*

(*Artificial water bodies, **Largely changed water bodies)

Scheme 5: *Cartographic layers for determining suitability of river corridor sections for rehabilitation*