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THE ECOSYSTEM APPROACH IN THE ENVIRONMENTAL PROTECTION OF THE DANUBE RIVER BASIN WETLANDS

ABSTRACT

The Ecosystem approach is the most cost-efficient and environmentally sound approach to the protection and preservation of shared natural resources. Although lacking legal standing to be proclaimed a principle of law in the environmental legal branch, it has gained considerable recognition in various texts that regulate the trans-boundary share and protection of natural resources, especially those concerning international watercourses and their adjoining natural habitats. It has also been positioned in the legal doctrine as the leading principle of environmental protection, however it is not sufficiently clear what would exactly be the scope of this principle in concrete situations. The utility of the ecosystem approach is especially visible in connection with wetlands, habitats of utmost interdependence and largely threatened by the anthropocentric philosophy of sovereign territorial interests pursuit. Elements of this approach are visibly scattered through various international legal instruments that regulate the environment of the Danube River Basin. However, it is doubtful that they create a firm legal obligation on the part of riparian states to protect their wetlands, irrelevant of the occurrence of environmental harm that affects other sovereign state interests. More likely, they institute a constant process of cooperation, share of information and monitoring, which serves as a framework in which future actions of stakeholders should develop, and very important is that they introduce to this process institutions of civil society, which are the ultimate beneficiaries of wetland protection and preservation. This process might eventually lead to the formulation of hard and fast legal rules that create enforceable obligations, but it is not yet possible to foresee whether this will ever happen. This is a clear reflection of the current state of general international environmental law, and although not the optimal, it is the only currently possible international legal regime in this field.

Key words: ecosystem, environment, Danube, wetlands.

Introduction

In this paper, I will give an analysis of the current international legal regime dealing with environmental protection of the Danube River Basin wetlands with the aim of offering an insight to what extent this regime adheres to the contents of the "ecosystem approach".

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To achieve this, I will explain in the first part the basic concept and contents of the ecosystem approach as it is defined in legal doctrine and several legal instruments, whose primary objects of environmental protection are not only natural habitats, but other aspects of the environment as well. Therefore, I will show that this notion is well embedded in the part of the current international environmental law that deals with freshwater resources, biodiversity and habitats protection. I will argue that its importance is so overwhelming, that it inevitably has to be taken into consideration whenever legal instruments for the protection of natural habitats are being designed. On the other hand, I will offer opinions of authors who, although not denying certain degree of standing for the ecosystem approach in current international law, doubt its value since they find it as a norm *in statu nascendi* depleted from binding power and therefore, unable to be effectively applied and enforced.

In the second part, I will posit wetlands in the hierarchy of natural habitats as one of the most important due to their numerous beneficial functions and activities for the human society and the environment itself. I will also shortly display the facts on wetlands of the Danube River Basin and problems which endanger their existence in the contemporary society. Finally, I will show why is the ecosystem approach most suitable to deal with problems affecting wetlands.

Finally, in the third part, I will present legal instruments which relate to the protection of the Danube River Basin and analyse in what degree they adhere to the concept of the ecosystem approach.

The definition of the ecosystem approach

Traditionally, customary and conventional rules relating to the utilization of shared natural resources have been based firmly on the notion of State sovereignty being therefore, focused on the protection of territorial interests. Generally, environmental considerations have only had legal significance to the extent that they coincide with such territorial interests. This has been particularly true in the case of shared freshwater resources where "the focus of the equitable use principle is on the balancing of different use interests in the resource and not on the protection of ecological interests" and where "rights and obligations under the equitable use rule also remain anchored in the territorial sovereignty of riparian States over the shared resource".[2]

However, in recent years, many international instruments, creating regimes for the utilization and protection of international watercourses, appear to have moved beyond the traditional obligations. They now focus on utilizing international watercourses in an equitable and reasonable manner and prevent significant transboundary harm by including more purely environmental obligations such as provisions that require the adoption of a more ecosystem-oriented approach to such protection.

[2] Owen McIntyre, "The Emergence of an "Ecosystem Approach" to the Protection of International Watercourses Under International Law", *RECIEL,* 13(1), Blackwell Publishing Ltd, Oxford, 2004, page 1.

How can we explain the contents of the principle[3] in short? In legal theory, few authors have written about the ecosystem principle in International Environmental Law, but they have reached a respectable degree of consensus on what it actually means and of which elements it consists. I will cite at this point the definition provided by the acknowledged authors in the field: "Simply put, an 'ecosystem approach' requires consideration of the whole system rather than individual components. Living species and their physical environments must be recognized as interconnected, and the focus must be on the interaction between different sub-systems and their responses to stresses resulting from human activity. Not only does interconnectedness imply management approaches that are broad-based in a spatial sense; it requires as well that human interaction with and use of the environment respect the need for maintaining 'ecosystem integrity', in other words, the system's capacity for self-organization."[4] We can outline several important points of this definition.

Firstly, the accent of the protection is to be put on the system rather than the individual components. In this systematic view, all the species belonging to the particular ecosystem must be taken in their entire interconnectedness, however complex it might be, since every single connection is important for the functioning of the system as a whole.

Secondly, in the ecosystem there are various subsystems which represent their own micro-worlds of interconnectedness. They must be recognized as influencing each other through the mutual interaction, while also responding to the influences coming from the exterior, mainly caused by the human activity.

Thirdly, these micro-systems are capable of organizing themselves and with that of further organizing the larger ecosystem to which they belong. Therefore, any human interaction with these self-organized units must take into consideration this ability if it wants to exploit the ecosystem integrity for the success of its purpose. This is nicely put in the provision of the Biodiversity Convention where it is stated that the "ecosystem means a dynamic complex of plant, animal, and micro-organism communities and their non-living environment interacting as a functional unit."[5]

On the other hand, examples of the ecosystem approach being formulated in the international legal instruments are plentiful and scattered through various regional or

[3] I have to make a terminology note at the moment. When discussing the ecosystem approach, the term principle should be used only in its dictionary meaning, not as a matter of a legal source. Although certain degree of legal standing cannot be denied to it in contemporary International Environmental Law, as we will see in the course of this article, there exists no agreement either in legal doctrine or in the practice of international community of its status as a general principle of law, as designated by the Statute of the International Court of Justice.

[4] Jutta Brunnée and Stephen Toope, "Environmental Security and Freshwater Resources: Ecosystem Regime Building", 91(1), *American Journal of International Law,* 1997, page 26.

[5] *Convention on Biological Diversity,* Article 2. Integrated text can be found in the International Legal Materials, number 31, 1992, page 818.

global texts that deal with the protection of shared water resources, but they appear in some documents of a more general nature as well, such as the Agenda 21.

One of the first international agreements to reflect the concept of ecosystem integrity was the 1978 Great Lakes Water Quality Agreement, Article II which states its purpose to be „to restore and maintain the chemical, physical, and biological integrity of the waters of the Great Lakes Basin Ecosystem"[6]. Indeed, Article I defines its area of application, the "Great Lakes Basin Ecosystem", as „the interacting components of air, land, water and living organisms, including humans, within the drainage basin". Further example of the definition can be found in the Article 2(2)(d) of the 1992 Economic Commission for Europe (ECE) Convention on the Protection and Use of Transboundary Watercourses and International Lakes (Helsinki Convention), which requires parties „to ensure conservation and, where necessary, restoration of ecosystems", while Article 3(1)(i) requires them to ensure that „sustainable water-resources management, including the application of the ecosystems approach, is promoted".[7] This Convention was very influential in the process of adoption of the Danube Convention, the results of which we will see in the third part of this paper.

Interestingly and unexpectedly, regional water resources treaties adopted by developing countries have tended to demonstrate some of the earliest and most ardent support for the ecosystem approach. I highlight this since it is a common argument in the environmental law field that the economic interests of the developing countries usually supersede the environmental concerns and even if the case is the other way round, they are certainly not inclined to look upon the environment as common heritage towards whose protection everyone should strive in unison, but rather the inevitable misgiving to their economical well-being. For example, Article 1 of the Rio Plata Basin Treaty, concluded by Argentina, Bolivia, Brazil, Paraguay and Uruguay, includes among its objectives the conservation and development of the flora and fauna of the basin.[8] But, few international river-utilization regimes demonstrate the need for ecosystem protection more dramatically than that of the Colorado River and the resulting deterioration of the ecosystem of the Colorado Delta. Due to over-allocation of the waters of the Colorado, freshwater flows into the delta have been reduced by nearly 75% during the course of the twentieth century, resulting in a concomitant reduction of delta wetlands to about 5% of their original extent.

A broad-based ecosystem approach has also received varying degrees of support among the declarations and resolutions of international organizations and codifying bodies, including various United Nations water and environmental conferences, the Commission on Sustainable Development and the International Law Association. In 1982, the United Nations Environment Programme noted in the period from 1972 to 1982 the „increasing

[6] Integrated text available on the website, http://www.epa.gov/glnpo/glwqa/1978/index.html, 18.11.2011.

[7] *Convention on the Protection and Use of Transboundary Watercourses and International Lakes,* Integrated text can be found in the International Legal Materials, number 31, 1992, page 1312.

[8] Treaty on the Rio Plata Basin, adopted in Brasilia on the 23rd of April 1969, text can be found in International Legal Materials, number 8, 1969, page 905.

recognition of the need for better management of water resources by treating river basins as unitary wholes"[9] and in 1991, the Organization for Economic Cooperation and Development (OECD) noted the increasing number of calls for ecosystem management of international watercourses.[10] The United Nations medium-term plan for the period 1992–1997 expressly recognized the threats posed to international watercourse ecosystems by socio-economic development and activities, stating: „Interactions between freshwater ecosystems on the one hand and human activities on the other are becoming more complex and incompatible as socio-economic development proceeds. Water basin development activities can have negative impacts too, leading to unsustainable development, particularly where these water resources are shared by two or more States"[11]. The approach was expressly endorsed by Chapter 18 of Agenda 21, which stated that the general objective is: „to make certain that adequate supplies of water of good quality are maintained for the entire population of this planet, while preserving the hydrological, biological and chemical functions of the ecosystems, adapting human activities within the capacity limits of nature"[12] Chapter 18 goes on explaining the significance of the ecosystem approach for integrated water resources management and thus, for the effective protection of the quality and supply of freshwater resources: "Integrated water resources management is based on the perception of water *as an integral part of the ecosystem*, a natural resource and a social and economic good, whose quantity and quality determine the nature of its utilization. To this end, water resources have to be protected, taking into account the *functioning of aquatic ecosystems* and the perenniality of the resource, in order to satisfy and reconcile needs for water in human activities. In developing and using water resources, priority has to be given to the satisfaction to basic needs and the *safeguarding of ecosystems.*"[13]

The trend whereby legal instruments require States parties to them to take an ecosystem approach for the protection of international watercourses was certainly cemented with the adoption of the framework Convention on Non-Navigational Uses of International Watercourses.[14]

As we have seen, the principle of the ecosystem approach is well established, nominally at least, in the texts of numerous treaties, conventions, declarations and other legal

[9] The World Environment 1972–1982: A Report by the United Nations Environment Programme (UNEP, 1982), cited from the article by Hubert H.G. Savenije, Pieter van der Zaag, "Conceptual framework for the management of shared river basins; with special reference to the SADC and EU", *Water Policy,* number 2, Delft, 2000, pages 9–45.

[10] Organization for Economic Cooperation and Development, *The State of the Environment,* Paris, OECD, 1991, page 69.

[11] Medium-Term Plan for the Period 1992–1997, UN GAOR, cited by Stephen McCaffrey, *The Law of International Watercourses,* Oxford University Press, second edition, Oxford, 2010, page 388.

[12] *Agenda 21*, Chapter 18, paragraph 18.2, text available at http://www.un.org/esa/dsd/agenda21/res_agenda21_00.shtml 18.11.2011.

[13] *Agenda 21*, Chapter 18, paragraph 18.8.

[14] *Convention on the Non-Navigational Uses of the International Watercourses,* Articles 20, 22 and 23. Integrated text can be found in the International Legal Materials, number 36, 1997, page 719.

instruments of both international and regional background that deal with the environmental protection of water resources. This has led the International Legal Commission (ILC) to suggest that there exists a general obligation on states to protect ecosystems, regardless of any transboundary impact. However, many distinguished authors have stood against this conclusion giving the arguments which can be summarized as follows: Whatever its merits, comprehensive ecosystem protection remains an underdeveloped concept in general international law and it is not yet possible to conclude that States have a general duty to protect and preserve ecosystems in all areas under their sovereignty. In their opinion, the ILC Commentary cited precedents which could only provide evidence of recognition by States of the necessity of protecting essential ecological processes and of a long-standing concern of States with the problem of pollution of international watercourses. The Commission has shied away, however, from formulating rights that would mirror these tentative ecosystem obligations. The Draft Articles, which have preceded the adoption of the Watercourses Convention adhere to the traditional approach pursuant to which environmental harm triggers enforceable rights only where it affects another watercourse State.[15] On the other hand, there are rather more optimistic views in relation to the status in general international law of the ecosystem approach stating that: „While this obligation may be described as 'new' or 'emerging', its basic elements are already part of general international law. The obligation, as formulated in Article 20 of the UN Convention, simply reflects advances in scientific knowledge about the interrelationships of natural systems".[16]

I would side with McCaffrey at this point, but also would like to add that the principle of the ecosystem approach, in a range of ways, permits consideration of relevant and related ecological factors which would otherwise be excluded under narrower approaches based on traditional notions of State sovereignty. Besides that, irrespective of which position one takes in relation to its precise legal status, few would disagree that this scientifically sound and potentially far-reaching approach to environmental rights and obligations has much to offer in relation to the continuing evolution of international environmental law. It has particular potential in relation to the environmental protection of international watercourses, where short-term, anthropocentric ideas of the self-interest of sovereign States have traditionally taken priority over the longer-term protection of shared freshwater resources.

With this being said, in the second part I would like to continue by giving facts on the environmental importance of wetlands as specific habitats that form an integral part of a watercourse system. I will argue why the ecosystem approach is the most suitable method of dealing with the protection of wetlands, since they represent the most vulnerable habitats of the Danube River Basin.

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[15] See the views of Patricia Birnie and Alan Boyle, *International Law and the Environment,* Oxford University Press, second edition, Oxford, 2002, page 314, or Ximena Fuentes, "Sustainable Development and the Equitable Utilization of International Watercourses", *British Yearbook of International Law,* number 68, 1998, page 171.

[16] Stephen McCaffrey, *The Law of International Watercourses,* Oxford University Press, second edition, Oxford, 2010, page 396.

Environmental importance of wetlands, or why are wetlands suitable for the ecosystem approach

Recent estimates suggest that globally there remain between 5.3 and 5.7 million square kilometres of wetlands including bogs, fens, swamps, marches, floodplain and shallow lakes. They serve a variety of functions, including flood and erosion control, water purification and shoreline stabilisation.[17] Wetlands are highly productive ecosystems and provide habitats for many species, including endangered ones. They are, however, sensitive ecosystems that can easily suffer from degrading riverbed erosion, pollution, intensive forestry, hunting and intensive recreational use, as well as measures for flood protection, agriculture and navigation. Besides their ecological value, floodplains can have a considerable positive effect on water quality and nutrient levels. Wetlands also serve as retention areas and help to even out flood peaks and reduce flood damage by storing surplus water. "Wetlands are the most important part of an aquatic ecosystem", says Christine Bratrich, head of WWF's Danube/Freshwater Programme. Wetlands serve as a link between the land and the water, and provide a range of services that benefit all aspects of river activities. Wetlands act as a sponge and aid in flood protection and groundwater recharge, by absorbing water during the wet season and slowly releasing it during the dry season. Wetlands also help keep the river clean, by acting as a filtration system, trapping nutrients, like phosphorus and nitrogen, as well as sediments. Finally, wetlands are bursting with life and provide a variety of different habitats, especially as they serve as spawning grounds for fish and nesting grounds for migratory birds.[18]

The loss of wetlands has been difficult to quantify, and the only country in which the rate is well documented is the United States, where estimates suggest that the wetlands in ten states fell from 895,000 square kilometres in the 1780s to 422,397 in the 1980s.[19] The major threats include pollution, hunting, human settlement, agricultural drainage and fishing. Wood-cutting, degradation of the watershed, soil erosion, siltation and the diversion of water supplies are additional threats.

Similar process is occurring on the level of the Danube River basin. According to a study conducted in the framework of the Danube Pollution Reduction Programme, over the last two centuries in particular, most of the larger floodplain areas have disappeared – including up to 80% of the total wetland area along the Danube and its larger tributaries, the Prut, Tisza, Sava, Drava, and Morava. The "taming" of wild rivers to improve flood prevention, navigation, agricultural production, and energy production, has shortened the length of the Bavarian Danube by 21% and the length of the River Tisza in Hungary

[17] See World Conservation Monitoring Centre, *Global Biodiversity: Earth's Living Resources in the 21st Century,* WCMC, Cambridge, 2000, page 219.

[18] Kirstie Shepherd, "A functioning river system: incorporating wetlands into river basin management", article available at http://www.icpdr.org/icpdr-pages/dw0702_p_03.htm , 18.11.2011.

[19] World Conservation Monitoring Centre, *Global Biodiversity: Earth's Living Resources in the 21st Century,* WCMC, Cambridge, 2000, page 222.

by 31%. Drainage ditches and dykes were built on about 3.7 million hectares of permanently or seasonally inundated land in Hungary during the 19th and 20th century. Some 80% of Romania's floodplains were likewise drained under agricultural intensification schemes during the 1960s and 1970s.[20] In the last 150 years, the need to create farmland, generate electricity and make water transport easier has changed the dynamics of the river. Today, more then 80% of the historical flood plain areas in the Danube River Basin has been lost, according to the ICPDR's Danube Basin Analysis. The loss of wetlands means the loss of the functions they perform. "We disconnected most of the wetlands or converted them to agricultural land", says Thomas Hein, who leads a working group at the Wasser Cluster Lunz and served as Assistant Professor at the Institute of Hydrobiology and Aquatic Ecosystem Management at the University for Natural Resources in Vienna, Austria. "It means that the landscape hasn't the possibility to buffer, to retain water, to retain nutrients, transport processes are dominating."[21]

Obviously, wetlands serve the purposes too numerous and important to be disregarded, however, they have suffered from the constant and widespread environmental degradation. This is due to the conflicting values which cannot be always put into accord with the sheer purpose of the more environmentally sound objectives, such as the need for larger spaces of potent agricultural land. But, the natural cycle in which the wetlands are one of the strongest links, cannot function based on these premises. The implications of the wetlands' degradation are not only visible in the contemporary moment, but will appear in their full effect in the long run, when it will be too late to react and prevent the inevitable. In this way, the wetlands protection is similar to the ozone layer and climate changes dilemma.

So we can come to the conclusion as why wetlands are, due to their immense importance, perfect habitats to be protected through the ecosystem approach. Firstly, the protection of their shared resources is a good worth promoting, whether for instrumental or intrinsic reasons. Secondly, whenever a resource is shared, particularly a resource that can easily be exhausted or degraded, disputes between the states involved are inevitable. To put aside the potential conflicts, the ecosystem approach will focus attention on the ultimate beneficiaries of environmental security, which are not states, but individuals and communities. Protection of their resources for humanity today and in the future will take on an independent value.

International legal regime of the Danube River basin wetlands

I will present various legal instruments concerned with the regulation of the Danube River Basin, its environmental protection, and the status of its natural habitats, paying most attention to wetlands. The majority of these instruments are regional in nature,

[20] Information available on the website of the International Commission for the Protection of the Danube River Basin http://www.icpdr.org/icpdr-pages/wetlands.htm 18.11.2011.

[21] Cited by Kirstie Shepherd, "A functioning river system: incorporating wetlands into river basin management", article available at http://www.icpdr.org/icpdr-pages/dw0702_p_03.htm 18.11.2011.

which is in accordance with the practice developed in international law for the regulation of the rights and duties of the riparians on the international watercourses. However, some of them are of European wide level, such as the two directives of the EU Council. I will also analyse briefly the globally recognized legal instrument for the protection of wetlands, Ramsar convention, due to its overwhelming importance for the formation of principles of environmental protection for these natural habitats.

The first global agreement to address the conservation of wetlands was the Convention on Wetlands of International Importance Especially as Waterfowl Habitat, or the Ramsar convention, adopted in 1971.[22] The Ramsar convention offers a detailed definition of the term wetlands, which was intended to serve well the purposes of environmental protection: "areas of marsh, fen, peatland, or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six metres."[23] Indeed, the definition includes in itself the watercourses wetlands, which are the main object of our interest in this analysis. However, in the legal doctrine is often indicated that this definition does not reflect the enormous variety of wetland types, or the fact that they are dynamic, capable of changing with the seasons and over longer periods of time, and that accordingly their boundaries are often difficult to define with any degree of precision.[24] Ramsar convention represents a very important breakthrough in the conception and implementation of the ecosystem principle. It reflected new international legal efforts aimed at conservation by protecting a habitat type rather than a species.

The mechanism of the Convention is the following. Each party, without prejudice to its sovereign rights, must designate suitable wetlands within its territory for inclusion in the List of Wetlands of International Importance, taking account of their international significance in terms of ecology, botany zoology, limnology or hydrology.[25] Each party's basic commitments include formulating and implementing wetlands conservation and its wise use; establish nature reserves; endeavouring to increase waterfowl populations; and ensuring that it is informed of any actual or likely change in the ecological character of any of its listed wetlands, which information is to be passed on to the Convention secretariat.[26] We can see that, although the accent is on the protection of the waterfowl population, which is defined by the Convention as "birds which are ecologically dependent on wetlands"[27], formulations such as "any actual or likely change in the ecological character" indicate that the more wholesome approach was intended by the creators of the text. This is visible further in the implementation control mechanisms.

[22] Integrated text of the convention can be found on the official website www.ramsar.org. 18.11.2011.

[23] *Ramsar convention*, Article 1(1).

[24] See for example the view offered by Philippe Sands, *Principles of International Environmental Law*, second edition, Cambridge University Press, Cambridge, 2003, page 543.

[25] *Ramsar convention*, Articles 2(1) to 3.

[26] *Ramsar convention*, Articles 3 and 4(1) and (4).

[27] *Ramsar convention*, Article 1(2).

Implementation of the Convention is reviewed by Conferences on the Conservation of Wetlands and Waterfowl held every three years. The Conference may consider problems of implementation, additions and changes to the List of Wetlands, and changes in the character of listed wetlands. The Conference may make recommendations to the parties on the conservation, management and wise use of wetlands and their flora and fauna which must be taken into consideration by the parties.[28] We can see that the wetlands are interconnected through the wording of this provision with their flora and fauna. They are inseparable and mutually complementary, therefore, the protection granted must be of integral character, which is in accordance with the ecosystem principle.

The connection between the Convention's monitoring system and the ICPDR is reflected in the observer status granted upon the Ramsar convention, for an unlimited period of time for all meetings and activities in the framework of the Danube River Protection Convention.[29] It is important to note, that in the Agreement itself, parties proclaim their awareness of the need to promote coordinated approaches to protecting and restoring wetlands and their biodiversity in the context of river basin management, particularly in the case of shared river basins and wetland systems. Obviously, the ecosystem principle was leading the parties in their declarative practice here. Besides that, most of the riparian countries and other states belonging to the Danube river catchment basin are either contracting parties to the Ramsar or are in the process of preparation for the adhesion.[30]

Besides Ramsar convention, other international legal instruments deal with wetlands on a more general level, such as the already mentioned Biodiversity Convention. However, more recent and for our purposes much more important are instruments of regional nature, adopted on the level of the European Union.

European Council Habitats Directive,[31] sets forth substantive and procedural rules to establish "a coherent European ecological network of special areas of conservation" (Natura 2000).[32] Once a special area of conservation is placed on the EU Commission list, the member state must take special conservation measures, including management plans, which correspond to the ecological requirements of the site. First, under Article 6(2), they must avoid the deterioration of natural habitats and the habitats of species as well as disturbance of the species. Secondly, under Article 6(3), they must conduct an "appropriate assessment" of the implications for the site of any plan or project not directly connected with or necessary

[28] *Ramsar convention*, Article 6(3).

[29] Agreement between Ramsar and the International Commission for the protection of the Danube River, preamble, http://www.ramsar.org/cda/en/ramsar-documents-agreement-between-ramsar/main/ramsar/1-31%5E21270_4000_0__ 18.11.2011.

[30] Republic of Serbia has ratified the Ramsar as far back as 1992.

[31] *Council Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora, 92/43/EEC* of 21st May 1992, text available at http://europa.eu/legislation_summaries/environment/nature_and_biodiversity/l28076_en.htm 18.11.2011.

[32] *Council Directive 92/43/EEC,* Article 3(1).

to the site's management, but which is likely to have significant effects for it. This provision leans on the principle of the ecosystem approach, in so far as it includes, under its auspices, "any plan or project", even though they might not be directly connected with the particular site. Thirdly, if the plan or project goes ahead after the assessment shows "negative" implications, there are no alternative solutions, and there are "imperative reasons of overriding public interest, including those of a social or economic nature" the member state must "take all compensatory measures necessary to show that the overall coherence of Natura 2000 is protected" and inform the EU Commission of the compensatory measures adopted.[33] The Directive establishes the basis for the co-financing by the EU of measures which are "essential for the maintenance or re-establishment at a favourable conservation status of the priority natural habitat types and priority species on the sites concerned.[34]

Natura 2000, with its network of wetlands, among other protected habitats, represents a true example towards which environmental protection of these ecosystems should strive in future. Problems connected with this plan are lack of clear legal obligations on the part of participating states, and ensuing failures of strict implementation. Sites designated under the Birds and Habitats directives, as well as other protected sites should only in principle have their own management plans or some other kind of contractual framework. But in practice, they often work in isolation and not efficiently enough. Thus, the effective management helped by transnational cooperation (networking) is necessary. The action should include exchange of experience and capacity building for protected areas/Natura 2000 sites administrations; community involvement; visitor management and tourism development; coordinated management planning, implementation and evaluation. These questions all mater policy more than law.[35]

Another instrument which comes from regional backround is the European Council Water Framework Directive (WFD)[36] which establishes a legal framework to protect and enhance the status of all waters and protected areas including water depending ecosystems, prevent their deterioration and ensure long-term, sustainable use of water resources. The Directive provides for an innovative approach for water management based on river basins, the natural geographical and hydrological units, and sets specific deadlines for EU Member States to produce Programmes of Measures and River Basin Management Plans.[37] This innnovative approach is indeed a true representation of the ecosystem approach, since it takes into consideration watercourse basins as wholesome units, without differentiation between their constitutive parts. The WFD addresses inland surface waters (rivers and

[33] *Council Directive 92/43/EEC,* Article 6(4).

[34] *Council Directive 92/43/EEC,* Article 8.

[35] Ministry of Environment and Spatial Planning of the Republic of Serbia, in partnership with foreign experts, works on the project 'Strengthening Administrative Capacities for Protected Areas in Serbia (NATURA 2000)" from the beginning of 2010.

[36] *Directive of the European Council and the European Parliament 2000/60/EC,* text available at http://www.wfduk.org/about_wfd/WFD-legislative-text 18.11.2011.

[37] *Directive of the European Council and the European Parliament 2000/60/EC.* Article 4(1)(c).

lakes), transitional waters, coastal waters, groundwater and, under specific conditions, water dependent terrestrial ecosystems and wetlands. It establishes several integrative principles for water management, including public participation in planning and the integration of economic approaches, and also aims for the integration of water management into other policy areas. Obviously, the object of protection is wide in its scope and among protection mechanisms designated, a great role is reserved for communities themselves, which is very important element of the ecosystem approach, bearing in mind it benefits the ultimate beneficiaries, such as civil society and the environment, more than sovereign states. This is ever more visible in further provision of the Directive in which it is stated that international districts for river basins should be created among member states, that would cover the territory of more than one EU Member State and it insists on coordination of work in these districts.[38] Status of wetlands in this Directive is accorded a lesser level than it is the case with other objects of protection, and this is its main flaw. That is to say, protection of wetlands is conditioned on the status of other units of river basins. This is a solution that disregards the ecosystem approach as it outwardly gives more importance to one unit of the system in comparison with the other. According to the EU WFD, pressures on wetlands are to be considered as significant and need to be addressed by measures where they are impacting negatively on the water status of adjacent water bodies.[39]

I have mentioned already that the provision for the protection of shared natural resources in the Danube River Protection Convention[40] is moulded on the example of the Helsinki Convention, so there is no need to analyse it further for present purposes. Suffice it to say that the Convention express a strong declaratory statement of the need cooperation, share of information and other forms of the implementation of the goals envisioned in its part concerned with environment. The Convention is translated on the practical level through management plans, which are periodically revisited. They are mostly concerned with procedural questions of implementation, and it can be said that they broadly follow the ecosystem approach. The current one is projected to last until 2015. It states three key hydromorphological pressure components of basin-wide importance that have been identified: a. Interruption of river and habitat continuity; b. Disconnection of adjacent wetlands/floodplains; c. Hydrological alterations. I have already discussed why the disconnection of wetlands area presents the trigger for further environmental degradation. To counter this, the plan indicates that the installation and application of appropriate control mechanisms at the national level regarding measure implementation will be important in order to achieve this basin-wide aim. Also, a respective feedback mechanism between the national and international level and vice versa will enable the further estimation of the basin-wide effect of the implemented national measures. Management plans are, in the hierarchy of the implementation

[38] *Directive of the European Council and the European Parliament 2000/60/EC,* Article 3(3,4,5).

[39] *Directive of the European Council and the European Parliament 2000/60/EC,* Article 11(3)(i).

[40] Convention on Cooperation for the Protection and Sustainable use of the Danube River, text available at http://www.icpdr.org/icpdr-pages/drpc.htm 18.11.2011.

process, concretized through Joint Action Programmes, which indicate specific steps to be taken for the purpose of environmental protection.[41]

Complementary to measures provided for by Action Programmes is the newly tailored EU Danube strategy, adopted by the European Commission, which represents a series of broad-stroke objectives such as: faster and cleaner transport connections, cheaper and more secure energy, a better environment, a more prosperous region, more tourism and a safer, better governed region. The Commission has prioritised 4 pillars as core content for the Danube strategy: Connecting the Danube Region: including mobility, sustainable energy, culture, tourism; Protecting the Environment in the Danube Region: including water quality, risk prevention, biodiversity & landscape; Building Prosperity in the Danube Region: including knowledge, education, invest in people and skills; Strengthening the Danube Region: institutional capacity and cooperation, security and safety. Important to note is that the Commission was obviously led by ecosystem approach idea when it stated that "The Danube Region is one interrelated and interdependent ecosystem, incorporating a rich and unique flora and fauna". This is further reflected in provisions concerning prospective measures: "To be effective, the environmental measures should be planned in connection with the potential development e.g. of tourism, construction, energy, transportation and agricultural sectors. Human migration, cultural differences, urban / rural development and regional security should also be taken into consideration. The improvement of current infrastructure efficiency (energy, household consumption, transport) should be examined before new infrastructure is built. Landscape (spatial) planning is key to developing good local environment".[42]

The discussion on the Strategy that occurred in European Parliament is a useful indicator as to how policy-makers perceive this kind of documents. Thus one member from Romania has emphasised the important role that local authorities should play n the implementation: "If we want to achieve economic growth and create jobs in the member states bordering the Danube, we must provide the conditions for the successful implementation of this strategy not only by involving local authorities, but also through public-private partnerships." The notion that the strategy should take a bottom-up approach was repeated by a number of MEP's during the plenary session. On the other side, criticisms have been expressed that there are too many different priorities in the strategy. During the debate in parliament, a Hungarian MEP presented his concern: "There are too many priorities. How will it be possible to create balance and harmony between the different priorities?" He added: "It is questionable how sometimes contradictory objectives laid down in the Danube strategy, such as water quality, improving the state of the environment, navigability, energy exploitation or eco-tourism can be harmonised."[43]

[41] Current Management plans and Action Programmes are available at http://www.icpdr.org/icpdr-pages/jap.htm .18.11.2011.

[42] EU Strategy Action Plan is available at http://www.dunavskastrategija.rs/en/?d 18.11.2011.

[43] Cited from the Internet source article available at http://www.publicserviceeurope.com/article/388/the-eus-danube-strategy-a-blueprint-for-the-future 18.11.2011.

Perhaps the most important future project on the environmental protection of wetlands in this area, fully in accord with the spirit of the ecosystem approach is the plan to create the"Mura-Drava-Danube Biosphere Reserve". On 25th March 2011, the ministers responsible for environment and nature protection of all five riverine countries, in the presence of EU Commissioner for the Environment signed a joint declaration establishing a Transboundary UNESCO Biosphere Reserve along the three rivers. The Mura-Drava-Danube Biosphere Reserve will be implemented within the European Commission's Strategy. The Biosphere Reserve will support the biodiversity objectives set by the European Council of Ministers in 2010, and will correspond to the objectives of the long-term 2050 biodiversity vision and the 2020 biodiversity target. Since the three rivers are covered extensively by Natura 2000 sites, it also contributes to the implementation of the Birds and Habitats Directives as well as the EU Water Framework Directive. The Biosphere Reserve paves the way to create the world's first five-country protected area, consisting of about 260,000 hectares of core and buffer zones and of another 540,000 hectares of transition zones. "It is not only a significant step forward in protecting the region's natural treasures but serves as a striking example of how nature conservation can bring countries together," says Andreas Beckmann, Director of the WWF Danube-Carpathian Programme.[44] Although if properly established, this project will be invaluable for the promotion of the ecosystem approach in the protection of internationally shared wetlands, its current declaratory status does not enhance its legal standing from more than a future vision.

Conclusion

The Ecosystem approach is the most cost-efficient and environmentally sound approach to the protection and preservation of shared natural resources. This is due to the fact that, in its theoretical construction, it privileges the environment as a unitary whole, as opposed to the notion of limited territorial sovereignty, currently the leading theoretical foundation on the law on shared natural resources, which is all about the balancing of interests among the riparians, where the environment usually passes as the ultimate loser. Although lacking legal standing to be proclaimed a principle of law in the environmental legal branch, it has gained considerable recognition in various legal texts and political declarations that regulate or deal with the trans-boundary share and protection of natural resources, especially those concerned with international watercourses and their adjoining natural habitats. It has also been positioned in the legal doctrine as the leading principle of environmental protection, however it is not sufficiently clear what would exactly be the scope of this principle in concrete situations. To add to this, one part of legal doctrine denies to this approach any practical value since it finds it impossible to implement. However, it must be accepted that the ecosystem approach is the only viable solution in the long run and that it is the only approach fully in accord with the ultimate goal of global community, the sustainable development. The utility of the ecosystem approach is especially visible in connection with

[44] Cited from http://www.icpdr.org/icpdr-pages/dw1102_p_05.htm.18.11.2011.

wetlands, habitats of utmost interdependence and largely threatened by the anthropocentric philosophy of sovereign territorial interests pursuit. The destruction of major part of wetlands area in the Danube River Basin is a sad testimony to the unsustainable schemes of historical utilization, which have to be transformed if wetlands are to be preserved. Elements of the ecosystem approach are visibly scattered through various international legal instruments that regulate the environment of the Danube River Basin. These instruments are numerous and they need good coordination to be applied for the benefit of the fulfilment of their goals. However, it is doubtful that they create a firm legal obligation on the part of riparian states to protect their wetlands, irrelevant of the occurrence of environmental harm that affects other sovereign state interests. More likely, they institute a constant process of cooperation, share of information and monitoring, which serves as a framework in which future actions of stakeholders should develop, and very important is that they introduce to this process institutions of civil society, which are the ultimate beneficiaries of wetland protection and preservation. This process might eventually lead to the formulation of hard and fast legal rules that create enforceable obligations, but it is not yet possible to foresee whether this will ever happen. This is a clear reflection of the current state of general international environmental law, and although not the optimal, it is the only currently possible international legal regime in this field.

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