

DELTA UNIVERSE AND NATURE PROTECTION IN THE DANUBE DELTA

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Abstract

Danube, the second longest river in Europe through a tortuous path in the Black Forest to the Black Sea. The river arises through union sources: Breg, Brigach, Donau Quelle and joins the sea by three branches: Chilia, Sulina and St. George forming the Danube Delta. As space crosses so large and diverse to establish the International Commission for the Protection of the Danube River which aims to ensure the sustainable use and equitable access to water resources along the river basin, the Commission's work jumpers Danube River Protection Convention which is an important instrument for cooperation and transboundary water management in the Danube basin. Romania was in 2007 president of the International Commission for the Protection of the Danube River. Romania is interested to protect the water of the river, given the length that it crosses the country and the fact that the arms of the Danube flows into the Black Sea forms one of the most rare and beautiful wetlands, named Danube Delta. It is appreciated that the Danube Delta Biosphere Reserve has become as compared to other deltas of Europe and the Earth has retained a high biodiversity, that a multitude of species from a variety of systematic units. In the European continent, Delta retained natural habitat. This area has special significance both ornithological aspect and morphological and climatic factors have described it as a very important reserve. Nature reserves in the area of 41500 ha were delineated in three different biotypes of the delta and was placed in the international studies program "Man and Biosphere" attached to UNESCO to recognize the importance of Romanian scientific nature reserves and the richness and variety of flora and fauna elements.

Key words: biosphere, convention, delta, flora, river.

INTRODUCTION

Nature recommences same things again, every year, day, hour, so it creates a kind of infinity and eternity - Blaise Pascal.

Danube from its source at the river mouths-

I. The Danube River basin

The Danube River is the second largest in Europe after Volga and it is formed by the confluence of the rivers Briegach and Brege that arise from the Black Forest. The Danube has a length of 2 840 km; an area of its basin is about 817 000 km²; the incoming flow into the Delta is of 6350 m³/s and is divided in the three branches: Chilia 58%, Sulina 19%, Sf. Gheorghe 23%. The Danube Delta is shared by Romania and Ukraine and has a total area of 4178 km², of which 82% (3446 km²) in Romania and 18% (732 km²) in Ukraine.

Because of its route, the Danube can be called the river of ten countries (Germany, Austria, Slovakia, Hungary, Croatia, Serbia, Romania,

Bulgaria, Republic of Moldova, Ukraine) and also the river of four capitals (Vienna, Bratislava, Budapest, Belgrade).

MATERIALS AND METHODS

I. The International Legal Regime of Danube Water (Duțu, 2003) is an indispensable element of the existence of life on the planet, a renewable, vulnerable and limited natural resource, a raw material for productive activities, an energy source and a transport pathway, a key factor in maintaining the ecological balance for the existence of life and the realization of all human activities (Marinescu, 2003).

“This scarce resource essential for life should be considered a natural treasure that is part of the common heritage of the mankind”.

II. The international regulations on the protection of the Danube (www.icpdr.org) appeared relatively late in comparison with

those for other continental waters. For a long time the international legal regime of the Danube referred exclusively to the freedom of navigation, to the economic and technical use of waters and to the fishing.

Since it crosses a vast space, the International Commission for the Protection of the Danube River was founded, aiming to ensure sustainable use and equitable access to water resources along the river basin. The Commission's activity has the Convention of the Danube River Protection as a starting point, which is an important instrument for cooperation and trans-boundary water management in the Danube basin.

An important moment in the history of Danube's protection efforts is the signing of the Declaration of Cooperation between the Countries of the Danube in the Management and Protection of the Waters of the River against Pollution on 13 December 1985 in the Conference of Bucharest.

After 1990, the riparian concern regarding cooperation in order to protect the river from pollution, both bilaterally and multilaterally grew. The situation materialized with the signing of several conventions and agreements, among which the Convention on Cooperation for the Protection and Sustainable Use of the Danube River (signed in Sofia, at June 29, 1994).

III. Current International Legal Framework

The international legal framework for protection against pollution of the Danube border currently has three categories of international norms: rules and principles on trans-boundary pollution, specific regulations targeting watercourses and international lakes, and regulation governed by coastal states within bilateral and regional cooperation.

1. Principles on trans-boundary pollution

Most of these principles are rooted in customary international law. The Stockholm Declaration on the Human Environment (1972) established the fundamental rule which provides that the states must proceed in such a way that activities within their jurisdiction do not damage the environment of other states. This rule was taken up and proclaimed subsequently in the texts adopted at the 1992 Rio de Janeiro Convention on Environment and Development.

Other principles and rules were set out in the Espoo Convention (1991) on environmental impact assessment in a trans-boundary context. The same category of principles on trans-boundary pollution includes rules concerning the responsibility of polluters, the duty to inform immediately the states likely to be affected by any event which may cause adverse effects on their environment, the rule of equal application of the national law, regardless of the place producing the environmental damage.

2. Specific regulations regarding watercourses and international lakes

The development of this category of regulations occurred through two framework agreements: the Helsinki Convention (1992) on the protection and use of trans-boundary watercourses and international lakes and the Convention on the right of use of waterways for purposes other than navigation (New York, 1997).

The concept of trans-boundary waters and of trans-boundary impacts was explained and regulated according to the terms of The Helsinki Convention which is the international regulatory framework on the subject. The injurious effect of the trans-boundary impact can "take many forms: attacks on human health, flora, fauna, soil, air, landscape and historical monuments, buildings; the interaction among these factors may also mean a breach of cultural heritage and of socio-economic conditions resulting from alterations of those factors."

The Helsinki Convention has created a general legal framework that was an incentive for the elaboration of agreements between riparian of international watercourses to prevent and reduce trans-boundary pollution.

The New York Convention aims "to enable to use, highlight, devote, manage and protect international watercourses and promote optimal and sustainable use for the benefit of current and future generations". The general principles of the previously mentioned conventions are equitable and reasonable use, the obligation to not cause significant damage, paying special attention to meet the essential needs in conflict resolution etc.

3. The Convention for the protection of the Danube River

The Sofia Convention (1994) on the sustainable protection and conservation of the River was signed by the ten Danube countries and the European Community, and it has a sub-regional integrative character.

The fundamental objectives of cooperation between the Danube countries, the basic principles of the river protection, and so on were thus established.

4. Other regulations on the protection of Danube against pollution

A series of bilateral documents aimed preventing and combating the pollution of the river was agreed between riparian states. Such documents are: (1991) the Convention between Romania and Republic of Moldova, (1991) the Convention between Romania and Bulgaria, (1993) the Agreement between Germany and Romania, (1993) the Convention between Romania and Slovakia, (1998) the Convention between Romania and Yugoslavia on operation and maintenance of hydropower and navigation systems "Iron Gates I" and "Iron Gates II".

Community environmental law is constantly growing. The member states of the European Community have already assimilated the Community rules into law while the candidate states are in the process of harmonizing and assimilating those; the adoption of EU legal regulations (represented by about 20 directives on water) is an important milestone, especially for determining the water quality objectives and the regulation of water discharges.

III. The Danube Day

The International Day of the Danube (www.danubeday.org) is celebrated every year on the 29th of June, as initially proposed by the Danube countries and under the auspices of the International Commission for the Protection of the Danube River (ICPDR in Vienna). This day marks the signing of the Convention on Cooperation for the Protection and Sustainable Use of the Danube River, an event that took place in Sofia (Bulgaria), on June 29, 1994.

Danube Day celebrations take place in all Danube states to mark their mutual desire to join forces in support of protecting this unique river in Europe.

IV. About "The Book of the Blue Danube"

The International Commission for the Protection of the Danube River launched "Danube Box", an educational project in the domain of the water protection. This project is designed as a tool (kit) to be used by teachers and students in the education process at the level of elementary school.

"The Book of the Blue Danube" has a special role to inform and educate children on values and traditions belonging to the Danube area and increase their awareness regarding the need to protect and preserve the aquatic ecosystem of the river basin.

V. The Delta Universe and Nature Protection in the Danube Delta.

The Danube creates a delta with three great branches at its mouth to the Black Sea.

The first branch is Chilia. With a length of 120 km it is the most vigorous as it accounts for 58% of the Danube's flow. Chilia, with its many biffs and islets, has the greatest depth of the three channels, 39 m.

Sulina, the second branch, is mainly used for navigation because there was done extensive work to deepen and to correct the meanders. The channel length decreased from 93 km to 64 km because of these works which took place between 1862 and 1902.

The third branch, Sfântul Gheorghe, is the oldest and it carries 24% of the volume of water and river deposits (alluvia). The branch has undergone significant transformations, namely the cutting of six meanders, which brought its length down to 70 km.

Remarkably, the Danube Delta has become a biosphere reservation. It has retained a high biodiversity (a multitude of species from a variety of systematic units) in comparison with other deltas in Europe and even on Earth. The Danube Delta has become a Biosphere Reservation due to the fact that, compared to other deltas on Europe or on the Earth, it has retained a rich biodiversity, ie a multitude of species from a variety of systematic units. Given the importance of this unique space, since 1991 the Romanian government started a comprehensive program to inventory the flora and fauna of the Danube Delta Biosphere Reservation. The purpose of this ample effort is to gain a better understanding of an important component of the natural heritage in a biosphere reservation and

identifying species that require protective measures and / or conservation.

As a result, this huge puzzle represented by the Danube and its delta is a habitat for a wide variety of plant and animal communities estimated at 30 types of ecosystems and 7405 animal and vegetal species.

Given the unique nature of the Danube Delta, the concerns about environmental protection, rational use of resources and preservation of its ecological balance have increased.

Regarding the delta, technical and scientific research revealed two relationships that are fundamental from an ecological point of view. These relationships affect an area far beyond their geographical boundaries, namely:

- a. the key position for the ecology of fish fauna in Danube Floodplain and the Black Sea coastal zone;
- b. the key position in the life of migratory avifauna in Europe, taking into account that delta is situated at the crossing of the main bird migration routes.

RESULTS AND DISCUSSIONS

I. What is Specific to the Danube Delta?

Within the Europe, the Danube Delta has kept its natural habitat. This area has a special significance in terms of ornithological, morphological and climatic factors which have described it as a very important reserve.

As a result, these features have made the delta to be considered rare and original in comparison with other major tourist areas in the country and in the world. So, the entire research and economic exploitation of the area is to be made in compliance with its ecological balance.

In this respect, within the territory of the delta three large natural reserves were established, spanning a tenth of the area of the delta, including geological and geographical formations, vegetal associations characteristic as well as refuges for migratory birds.

Nature reserves with the area of 41500 ha were delineated in three different biotypes of the delta and were introduced in "The Man and the Biosphere" the UNESCO international studies program, to recognize the importance of Romanian scientific nature

reserves, but also the richness and the variety of its flora and fauna elements.

II. Domestic and International Legal Regime of the Danube Delta

The EU environmental policy, as established by the EC Treaty, aims to ensure the environmental sustainability activities through its inclusion in the EU sector policies.

From the point of view of the international law, the Danube Delta has a triple protection and conservation regime established by conventions.

Current legislation sets for the states involved, in addition to direct obligations of protection, conservation and sustainable use of the area and its resources, other obligations in relation to the states that have interests in this regard, especially as a natural shared area, such as obligations to not affect areas under the sovereignty of another state, to consult, inform and cooperate.

In December 1993, the Romanian Parliament adopted Law no. 82, later amended by Law 454/2001 on the establishment of the Danube Delta Biosphere Reservation. This law establishes the main tasks of running the Danube Delta Biosphere Reservation (ARBDD), a public institution subordinated to the central authority for environmental protection.

III. The Convention on Cooperation for the Protection and Sustainable Use of the River (www.icpdr.org/icpdr-pages)

A. The purpose and objectives of the Convention

The main purpose of the Convention is to ensure the protection of the water and of the ecological resources, and also their sustainable use in the Danube drainage area.

It is estimated that this aim will be achieved through sustainable and equitable water management, through the conservation, improvement and rational use of surface and groundwater from the drainage area.

It is necessary for all parties to make every effort to control the hazards originating from the accidents involving dangerous substances discharge into water, floods and frost affecting the Danube, and such effects should help to reduce the pollution loads of the Black Sea from sources situated in the drainage area.

On the one hand, the Contracting Parties shall establish the appropriate priorities that will strengthen, harmonize and coordinate the measures taken and planned to be taken at national and international levels throughout the Danube basin, aiming the sustainable development and environmental protection of the Danube River.

On the other hand, this objective refers to the effort to ensure sustainable use of water resources for supplying the drinking, industrial and irrigation water, but also for the preservation and reconstruction of the ecosystems and the maintaining of the public health requirements.

IV. The Flora and Fauna of the Danube Delta

One of the reasons that the Danube Delta became a biosphere reservation is that, compared with other European and worldwide deltas, it has retained a higher biodiversity, in other words a large number of species from a wide variety of systematic units.

Moreover, the Danube Delta strikes by its high density in many species that are rare or absent in other parts of the continent

Even so, the number of these species as well as their habitats has been severely affected by human activities in the past decades. .

The inventory of the flora and the fauna of RBDD territory started in 1991.

This action has two major objectives:

- a. knowledge an important component of the natural heritage in a biosphere reservation
- b. highlight the species requiring protective measures and / or conservation.

The mosaic of habitats developed in the Danube Delta Biosphere Reservation is the most varied in Romania and it hosts a great diversity of plant and animal communities.

CONCLUSIONS

The Danube Basin contains various riparian countries and a total population of about 250 million inhabitants, which generates pressure on the river environment.

Generally, Coastal States have not sufficiently developed economies and they do not give due consideration to environmental issues; from the point of view of the industry, agriculture and technology, the most

developed is the upper basin, followed by the middle basin and the lower basin.

The Cooperation of the Danubian states is influenced by reporting to the process of European integration in the context that a part of riparian countries are members of the European Union (Germany, Austria, Czech Republic, Hungary, Romania, Bulgaria).

The Conservation of the natural conditions and historical and cultural monuments aligns with the basic concerns of our state: "It is necessary to take rigorous measures to control the industrial hazards, to prevent water and air pollution, to protect the forests, rivers, mountains and lakes considered monuments of nature." Within the European committee, the Danube Delta maintains its natural biotope and thus it has an exceptional significance taking into account the ornithological rapport and the morphological and climatic factors that have made from it an important reserve with many rare vegetal and animal species. These features have made the delta to be considered absolutely unique compared to any first rank tourist area in our country.

The Danube Delta integrates: resources of reed (cane) for cellulose and paper manufacturing industries; areas for hunting and fishing; recreation places for tourists; areas of scientific interest.

In 2000, due to the favourable conservation status of the ecological systems and species in the Danube Delta, the Council of Europe awarded the European Diploma for this reserve, diploma renewed in 2005. Home to a wide variety of plant and animal species as well as associations and communities particularly interesting and valuable, the Danube Delta remains one of the best preserved deltas in Europe, being declared Natura 2000 site both as Special Area of Conservation and Avifaunistic Special Protection Area.

The objectives that we have set through the establishment of the Danube Delta Biosphere Reservation are based on the principle of sustainable development whose primary goal is re-naturalization of the delta by removing the disastrous effects of the past. Parallel efforts were made to preserve the entire Delta ecosystem's potential fauna and flora, to be

able to offer to people loving the nature not only eco-tourism, but also the opportunity to enjoy - now and in the future - the benefits of nature.

The fragility and the active dynamic of the deltaic system aroused for a long time the interest of scientists. At the same time, all actions that must carry ARBDD require a scientific foundation for a rational, environmental management, ensuring both biodiversity conservation and sustainable development. The Danube Delta is the chosen place by nature and people, where all actors involved are trying to understand and learn how to use natural resources and, at the same time, preserve them for the future.

The Romanian wetlands were defined as stretches of swamps, marshes, natural or artificial, permanent or temporary waters, where the water is stagnant or flowing, fresh or salted, including the marine water bodies whose depth at low tide does not exceed six meters. The above mentioned areas are areas where the saturation with water is the main determinant of the soil nature, and of the types of plant and animal communities living in the soil or on the soil surface.

The 2nd of February - The World Wetlands Day

The Convention on Wetlands signed in Ramsar, Iran, in 1971, established February 2nd as World Wetlands Day; the document was ratified by Romania through Law 5/1991. This year, the World Wetlands Day is celebrated under the slogan "Without wetlands there is no water" and is the occasion to draw attention to the fact that the sustainable use and conservation of the wetlands must be part of any solution to reduce the global drinking water crisis.

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