Sustainable Management of the Lakes in Transylvania Plain

Ioan FODOREAN, Titus MAN
„Babeş-Bolyai" University, Cluj-Napoca, Romania

The evolution of the number of the lakes in Transylvania Plain, the necessity of sustainable management, judicial frame

The lakes appear under more forms and dimensions and include lots of characteristics that constitute important advantages in defining them as a class of objects that need to be studied. They have very well defined limits and there are open systems that receive water, solar energy and chemical substances from outside the system.

The special literature from abroad gives a great importance to the study of the lakes and the neighbouring fens and the multiple interactions that result from the existence of these aquatic systems. Thus, there were elaborated sophisticated paradigms for the study of aquatic systems, such as: the paradigm of lakes as micro spaces or integrated ecosystems, the paradigm of lakes as experimental systems, the paradigm of lakes as chronicles of natural history etc.

In what the lakes in Transylvania Plain are concerned, their statistical evolution closely reflects a certain way of managing the lake surfaces, not necessarily a correct one, having in mind the large extension of these surfaces in the past and present number of lakes.

The oldest cartographic document about the extension of the lakes in Transylvania Plain is the map of A. von Wenzely and F. A. Schraembl, which appeared in 1789 and was published by T. Morariu in 1958 and afterwards by Al. Săndulache. According to these authors and their writings, we may conclude that on Fizeş Valley, starting with the springs' areas a continuous lacustrine system is formed in between Cămăraşu de Câmpie and the confluence of Diviciori River with Fizeş River, down Sântioana on a distance of 35 km. On Luduş Valley there is an array of lakes on a distance of almost 50 km. On the main affluents there are four lakes on Frătei Valley, five on Silivaşului Valley and three on Lunga Valley. In Comlod Basin there are seven lakes, on Bolduțului Valley there are four lakes, in Gădălinului Basin five, and on Dipşa Valley there are eleven. And yet the lake of Pogăceaua Valley is not signalled anywhere. On another cartographic document from 1862, these lakes are very well defined units, even though their number is a lot smaller than on the previous map. In the North- Eastern part of the Plain, on Dipşa Valley, there is no lake anymore and the same happens to Meleşului Basin; moreover Ştiucii Lake isn't represented despite the fact that it is one of the biggest and deepest lakes in this area. Over a period of 73 years, period in which these two graphical representations were made, it seems that some of the lakes were naturally or artificially drained, their traces still being visible nowadays. Later on, in 1908, Sztripszki's paper, dealing with fishing practices in Ardeal, was published. This document illustrates the history of the development of the lakes in Transylvania Plain. Based on the documents that he consulted, the author established that there were about 250 lakes in Transylvania Plain, out of which only 20 could still be visible in 1908. From this author's point of view, the main usage of the lakes was for mills, and only secondary for fishing. The author considers that the large number of lakes in the past may have been a result of the religious habit of the Catholics of having ember days, when there was allowed to eat fish, yet since the spreading of reformed religion about 40 monasteries have been closed, and their almost 200 fishing lakes have disappeared too. This explains why in 1908 the number of these lacustrine units was a lot smaller.

Moreover, in 1908 K. Erödi publishes a map that illustrates the territorial spreading of the lacustrine surfaces in Transylvania Plain, where the number of lakes is smaller than on the previous maps.

In Someşu Mic basin there is only one lake, at Suatu, in Fizeş basin there were only the lakes that already had been individualized and may be seen today, as well, and in Luduş basin the author only mentions the lakes Miheş and Zău, and the author doesn't mention Tăureni Lake.

It seems that the author may have been right in what the repartition of lakes is concerned, if we judge by a map from the end of the 19th century, on which we may easily notice the relatively small number of lakes on Pârâul de Câmpie River.

In what concerns the repartition of the lakes nowadays, this one appears like this:

Table 1. The repartition of the lakes.

No.	Name	Position
1.	Ştiucii	Hosu V., left afl of Fizeş River, nearby Săcălaia locality
2.	Pogăceaua	Interflow between Sărăturii V., right afl. of Comlodului and Bologa rivers
3.	Archiud	Close to homonym localities
4.	Dătăşeni	Close to Mureş river, between Luduş and Lechinţa
5.	Sântejude I	V. Sicu, left afl of Fizeşului upstream Sântejude Vale locality
6.	Sântejude II	V. Sicu, left afl of Fizeşului upstream Sântejude Vale locality
7.	Borzaş	V. Sicu, left afl of Fizeşului upstream Sântejude Vale locality
8.	Ţaga Mică I	Fizeşului V., near Ţaga locality
9.	Ţaga Mare	Fizeşului V., between Ţaga and Sucutard
10.	Sucutard II	Fizeşului V.
11.	Sucutard I	Fizeşului V., downstream Lacu commune
12.	Geaca III	Fizeşului V.
13.	Geaca II	Fizeşului V.
14.	Geaca I	Fizeşului V., in SW of commune on Mociului V.
15.	Roşieni	Ciortuşului V., when interflows Mociu and Fizeş rivers
16.	Sf. Florian	Fizeşului V.
17.	Tăul Popii	Fizeşului V.
18.	Cătina	Fizeşului V., where Fizeş interflows Cătina
19.	Miheş II	Luduşului V.
20.	Răzoare	Luduşului, V. where Velcheriu interflows Părăul de Câmpie
21.	Miheş I	Luduşului V., where Şesului V. interflows Luduşului V.
22.	Miheş III	The confluence of Şesului V. (Bologa) with Luduşului V.
23.	Văleni	Şesului V. (Bologa), left afl of Luduşului V.
24.	Şăulia I-IV	Şesului V. (Bologa), left afl of Luduşului V.
25.	Bujor II	Luduşului V.
26.	Bujor I	Luduşului V.
27.	Zau de Câmpie	Luduşului V.
28.	Tăureni IV	Luduşului V., between the interflow with Morii V. and that with Corabia, both right affluents
29.	Tăureni II	Luduşului V., between the interflow with Morii V. and that with Corabia, both right affluents
30.	Tăureni III	Luduşului V., between the interflow with Morii V. and that with Corabia, both right affluents
31.	Tăureni I	Luduşului V., between the interflow with Morii V. and that with Corabia, both right affluents
32.	Sânger	Luduşului V., between the interflow with Morii V. and that with Corabia, both right affluents
33.	Fărăgău	Şarului V., sit. at the interflow with Mureşul nearby Glodeni locality
34.	Ercea	Şarului V., sit. at the interflow with Mureşul nearby Glodeni locality
35.	Toldal	Şarului V., sit. at the interflow with Mureşul nearby Glodeni locality
36.	Păingeni II	Şarului V., sit. at the interflow with Mureşul nearby Glodeni locality
37.	Păingeni I	Şarului V., sit. at the interflow with Mureşul nearby Glodeni locality
38.	Glodeni II	Şarului V., sit. at the interflow with Mureşul nearby Glodeni locality
39.	Glodeni I	Şarului V., sit. at the interflow with Mureşul nearby Glodeni locality
40.	Tăul Ceanului	Caldă Mare V., downstream the interflow with Cheiţa
41.	Beclean	Caldă Mare V.
42.	Fâneaţa Vacilor	Caldă Mare V., at the confluence of Caldă Mare V. with Vacilor V.
44.	Turda	Caldă Mare V.
45.	Mărtineşti	Racilor V.

It may be noticed that the number of lakes in Transylvania Plain is rather large even nowadays, the most important element being represented by the large extension of water surfaces, reason enough for the implementation of a new project for a sustainable management of these lakes.

During time, the local authorities had many initiatives and preoccupations in this respect. The area that is insisted upon is Fizeşu hydrographical basin, even if the aspects approached aren't completely focused on the lacustrine surfaces, but also on the flora and fauna aspects. A remarkable thing here is the project for the mentioned area controlled by the Environment Protection Inspectorate of Cluj-Napoca, which will be financed by the European Union with 450.000 Euro, and moreover, it could be the only one of this kind in Romania. This project refers to the establishing of a functional ecological network in the centre of Transylvania Plain and its main purposes will be the preservation of the most valuable flora and fauna species in Fizeş hydrographical basin, on a 40.000 hectares surface. Up to the present time some other zones in the area have been in the attention of researchers, and as a result they have become natural reservations, being described below:

The Botanic Reservation of Suatu. It is situated at a 26 km distance from Cluj-Napoca City, on a surface of 4 hectares, where we can find real botanic treasures that have been subjects of studies for researchers since 1911.

The Ştiucii Lake Reservation. The vegetation that surrounds the lake makes possible the existence of the necessary conditions for the development of a rich flora and fauna, at the same time offering a resting place for migratory birds.

The "Legii Lake and Valley" Ornithic Reservation. It is situated in the upper basin of Fizeş River, and it was declared natural monument in 1967. Its 45 hectares surface adds in numerous bog lands covered with reed.

The Peony Reservation from Zău de Câmpie. Situated in the middle basin of Pârâul de Câmpie River, this reservation lays on a small surface of land, the steppe peony (*Paeonia tenuifolia*) being found here. This is the only place in Transylvania where this plant grows, at the western limit of its spreading area.

For solving the numerous existent problems in the management of the protected areas, it is absolutely necessary to apply the following protection actions:

- marking the field, by setting boundary stones, so as to delimit the protected areas;
- enclosing or fencing all the areas that represent botanic and zoological natural reservations;
- improving the security of these areas and also the scientific reservations;
- posting some indicators to each and every protected objective, on which to be written down the name and type of the objective, and also the misbehaviours punishable by law through penal intercourse;
- supporting, even financially, the periodical or permanent actions of supervising and checking made by the nongovernmental institutions.

The lacustrine areas, especially the nearby bog lands have lately constituted areas of interest for the governments of numerous countries, which adopted and signed the Ramsar Convention on February, 2nd, 1971, amended later by the Paris Protocol in December, 3rd, 1982. Romania adhered to this convention and there was set the law No 5 in January, 25th, 1991, referring to the Convention of the humid areas, of international importance, as a habitat for the aquatic birds.

Practically this convention represents a first judicial measure having the character of a sustainable management of humid areas, which are recognized as being a resource of great economic, natural, scientific and recreational value, for which reason their disappearance would b disastrous.

Moreover, this convention considers the aquatic migratory birds as an international resource. In present, as far as we know, the only humid area in Romania indicated by authorities when signing the convention (because it was compulsory to mention at least an area) would be the Danube Delta.

We consider it as a first proposal concerning the sustainable management of the lakes in Transylvania Plain to include the middle basin of Fizeş River into this humid protected area category, having the fact that, as we earlier mentioned, in this sector there are many reservations, most of them about flora and fauna.

The evolution of some important parameters of clear water lakes in Transylvania Plain and proposals for sustainable management

Even from the beginning there must be mentioned that approaching the aspects of a sustainable management of the lakes as specific individualities is very difficult, even without referring to the aspects of the other physical-geographical and socio-economic elements. We consider that the issue of sustainable management has to stress upon a few coordinates:

- the aspects of comblement of lakes, including the issue of the presence of vegetation on the lacustrine surface;
- the process of eutrophization of the lakes;
- the sources of pollution in the water of the lakes;
- the pisciculture.

The comblement. When we talk about the lakes in view, the problem of comblement maintains itself on a very special place, because the way and functionality of the lakes depend on it. Because the comblement of the lakes determines the decrease of their utility and capacity of attenuation and their period of functioning, as well, some studies and proper measures for reducing the intensity of this process are necessary.

The aim of researches with a view to the process of comblement of the clear water lakes has, as main objectives the setting up of some preventive measures for attenuating the comblement of these lakes, so that their period of functioning would last longer in the projected parameters and, in the worst case, for the uncomblement the lakes, which would be very expensive.

The pisciculture is the main activity practiced on the lakes from the Transylvania Plain for which reason we considered necessary to decide, on the basis of the existent data, if the perspective of using the lakes in the aim of fishing is a real and practical one. For this, we took into consideration the *piscicultural* volume, the most important morphometric element, and the data about comblement, this characteristic volume, which are listed in the table below.

Table 2. The annual average level and rhythm of comblement the piscicultural volume of the main lakes in Transylvania Plain.

No.	The name of the lake	The period of analysis	The piscicultural volume			
			The process of comblement		The Average Annual Rhythm	
			mil. m^3	(%)	mil. m^3	(%)
1.	Borzaş	1971-1999	0,016	16,42	0,0005	0,61
2.	Sântejude	1971-1999	0,053	16,06	0,002	0,59
3.	Sucutard II	1962-1997	0,444	73,03	0,013	2,09
4.	Sucutard I	1971-1997	0,286	95,33	0,011	3,67
5.	Geaca III	1971-1997	0,137	80,59	0,005	3,10
6.	Geaca II	1962-1997	0,137	85,63	0,004	2,45
7.	Geaca I	1962-1997	0,184	76,03	0,005	2,17
8.	Tăul Popii	1962-1997	0,089	30,69	0,003	0,88
9.	Cătina	1962-1997	0,322	46,67	0,009	1,33
10.	Miheş I	1971-1998	0,029	32,58	0,0011	1,21
11.	Miheş II	1971-1998	0,011	26,83	0,0004	0,99
12.	Miheş III	1971-1998	0,014	23,33	0,0005	0,86
13.	Bujor I	1962-1998	0,025	19,53	0,0007	0,54
14.	Bujor II	1962-1998	0,019	32,76	0,0005	0,91
15.	Zău de Câmpie	1962-1998	0,148	7,79	0,0041	0,22

And in what the extension of the *hygrophilous* concerns, the most severe problems appear mainly on the same lakes, even if large percents of the vegetation that covers their surface appears on other lakes, as well, but which have a much larger surface (table 3).

Even though the other lacustrine surfaces aren't so much accumulated in, the simple fact of a certain present process of comblement, it would represent a passive attitude. The sustainable management presupposes the necessity of controlling and an active stepping into the action of this process. Its proportion and rhythm could be influenced by acting upon the main factors that contribute to the comblement of the lakes in the studied area. Thus, two types of measures are individualized here: the preventive and curative ones, of which preferably would be the first ones, because it is a lot easier to act upon the causes and not upon the effects (*I. Giurma, 1997*).

Table 3. The extension of the higrofile vegetation of the lakes in the upper basin of Fizeş River (V. Sorocovschi, Gh. Şerban, I. Rus, 1998).

No.	The Lake	The level of water when measuring (m)	The surface (ha)		
			Total	Invaded	(%)
1.	Cătina	293,40	56,0	1,95	3,48
2.	Tăul Popii	-	-	-	-
3.	Sf. Florian	291,30	9,4	1,825	19,41
4.	Roşieni	0	20,64	5,278	25,57
5.	Geaca I	291,15	26,15	2,137	8,17
6.	Geaca II	289,71	16,25	3,25	20,00
7.	Geaca III	288,77	10,409	0,67	6,44
8.	Sucutard I	287,27	25,85	3,9	15,09
9.	Sucutard II	286,0	41,3	0,5	1,21
10.	Ţaga Mare	-	104,21	15,62	14,98

The preventive measures deal with the causes and they may be established if someone takes into consideration the three phases of the comblement process:

- measures for the derivation place and their aim is to reduce the process of soil erosion in the entire reception basin, as for surface erosion, and also for in-depth erosion;
- measures for the transportation area, through works for protecting the river beds, on both sides;
- measures for a depositing place, through maintaining a sufficient volume for comblement (if possible the retaining of the alluvia to be in other basins than the useful accumulation).

The curative measures look upon the effects and consist in taking off the deposits in the accumulations and these help uncomblement the lakes, but usually they are difficult to be applied to, and some of them very expensive so that they come to overpay the price of a new accumulation.

The process of eutrophization. This process represents the damaging raising of the nutrients in the lakes and in our century this represents one of the major problems of the clear water and one of the main objectives set by sustainable management of the lacustrine units.

Among the typical symptoms, found especially on some lakes in Fizeş basin, include the continuously growing weed and organic microfite, associated with issues like taste, smell and even toxicity, diminishing the oxygen in the in-depth layers of the lake and losing some of the fish and *invertebrates* species.

The causes of this process are multiple and not singular. Nevertheless, in many other studies abroad, this problem is still not being solved. There are many examples even in the special literature that explain this process of eutrophization, even though in many situations it is very carefully observed, it still affects the important lacustrine surfaces, for example the Great American Lakes or the lakes in Scandinavia (*The USA National Academy of Science, 1996*).

The density of the households around the lakes – an important source of water's impurity. Transylvania Plain is one of the largest areas considered as deprived areas in the North-West Region and not due to the lack of physical and geographical resources but due to some socio-economic aspects about the lack of the current water, sewerage system, the predominance of the rural population and others. These aspects also affect the lacustrine systems, especially Fizeş basin, in which some of the lakes are directly affected by their closeness to the nearby households (figure 1), which involuntarily overflow a large quantity of organic substances into the water of the lakes.

In the middle basin of Fizeş River we may find the most serious problem that primarily affects Sucutard II, Geaca III, Geaca II and Geaca I lakes, situation in which the settlements are linearly shaped, alongside the lakes.

We also consider that, in such a case, some measures for eliminating these aspects would be necessary and that also depend on many decisional factors.

However, this wrong management has immediate consequences on fish production and fishing process, fact which is emphasized by the decreasing number of fishermen in the Geaca I lake area and by choosing some sectors up the river to practice this sport.

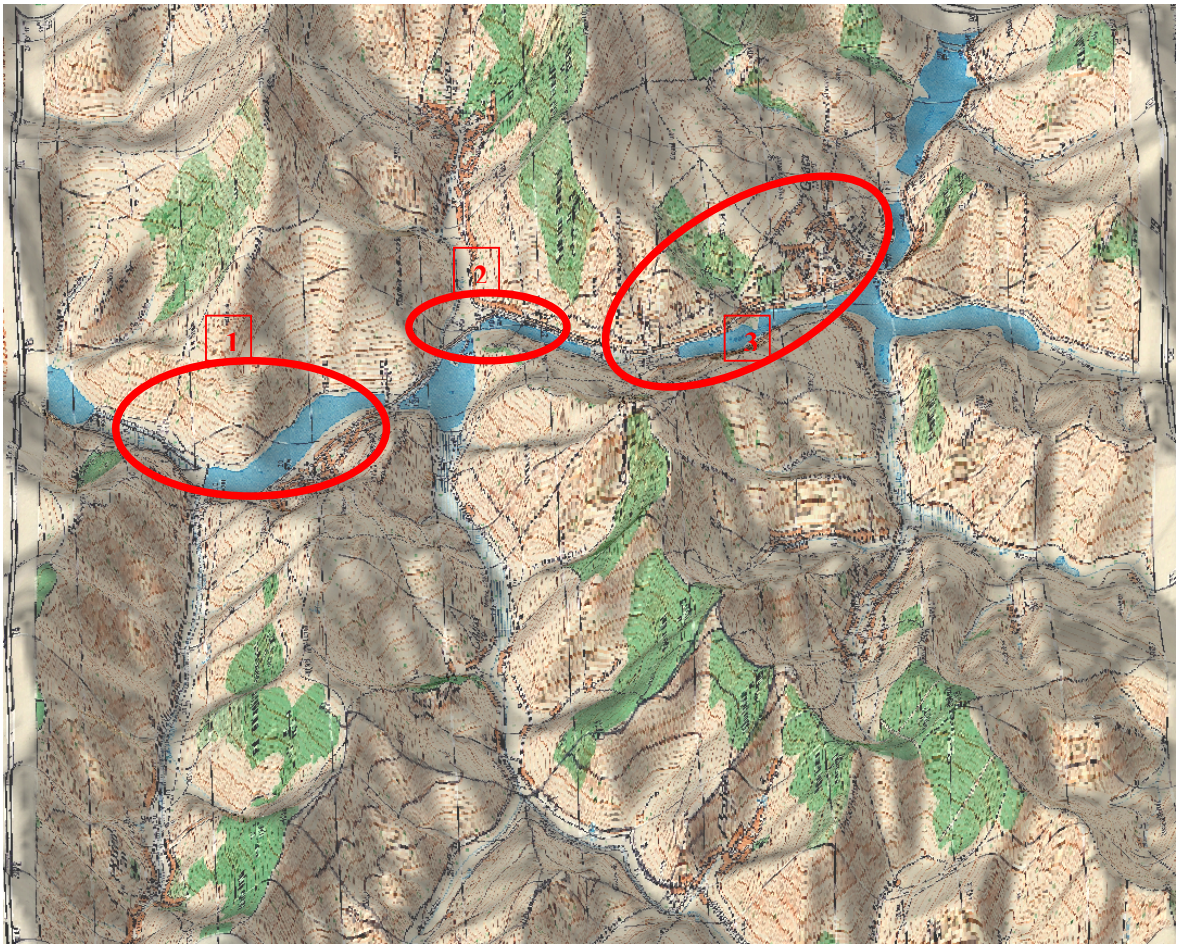

Figure 1. the critical areas resulted from setting the population households in the immediate neighbourhood of the lakes in Fizeş basin.

Fishing and the organizational system of fish production. As for the aspect of the organized pisciculture, it may be divided into four characteristic periods.

The first period corresponds the phase up to 1950, when the surface set up for pisciculture was only 270, 2 ha large, where Zău de Câmpie, Bujor I, Tăureni, Ţaga Mare lakes were added into. The years between 1951 and 1960 are supposed to form the second period of development of the pisciculture in the plain, during these years being established a surface of 168, 2 ha, only for Cătina, Tău Popii, Geaca II şi Sucutard II lakes.

The third period corresponds to the years between 1961 and 1970 when the pisciculture surface grew with 335, 9, meanwhile Zău de Câmpie Lake was modernized and the lakes of Şăulia, Miheşu de Câmpie, Bujor II, Tăureni were established. During the fourth period, which starts in 1971, the pisciculture affiliates to two major plain valleys of the rivers (Fizeş and Pârâul de Câmpie) through modernizing other lakes.

At the same time the practices of pisciculture shift towards other new hydrographic basins, like Iernut, Glodeni and Fărăgău lakes on Noroiaşu Valley, Suatu and Aruncuta lakes on Gădălin Valley, Mărtineşti and Turda lakes on Racilor Valley.

These improvements made to the lakes contributed to a fast growing of the surfaces set for pisciculture, which worked out at over 1800 ha in 1984, more exactly 1834 ha (by *Gr. P. Pop, 1986*).

This pisciculture surface was organized into specialized farms that managed the entire activity in pisciculture, starting with providing the spawn for lakes, providing food for feeding the fishes, cropping, maintaining the lacustrine surfaces, and so on. Up to 1990, some farms functioned at Zău de Câmpie, on Luduş Valley at Tăureni, on Şesului Valley the lakes were administrated by the Agricultural Cooperatives for Production Şăulia and party household Mureş (only Văleni Lake), on Fizeşului Valley there were Geaca and Ţaga farms. Even from the beginning, pisciculture characterized itself by growing some species of Romanian carp and then of some species of Chinese carp. Using the existing data, the annual fish production up to 1990 usually was over 2 tones/ha, but obviously these data may not be the real ones, because we all know the way in which production "was declared" at that time.

Still, it remains clear the fact that, up to 1990, the aspects affined to pisciculture were organized in a certain way, especially inclining to the area of Pârâului de Câmpie hydrographic basin.

After 1990, the same time the opinion about property changed, the situation changed,as well. Since then, these aquatic surfaces have changed their status to a private one and many of them degraded.

Nowadays, the lacustrine surfaces in Pârâul de Câmpie basin benefit of the best management, from all points of view (see also the aspects affined to comblement), and the lakes in Fizeş basin degraded year by year, excepting some of them (especially those from the upper and lower basins).

Some proposals for a sustainable management of the lakes in Transylvania Plain. Taking into consideration the aspects mentioned above, we consider that, no matter the use of accumulations is, the most important aspect related to the concept of sustainable management of a lake, is the one related to the process of comblement, which imposes the period in which the accumulation will function.

The friable substratum in Transylvania Plain, the low level of forestation, the excessive depasturage, the prevalence of agricultural fields, the lack of management in the functionality of the lakes, are only a few elements that dragged into a rather accentuated comblement of the lakes, especially for those in the middle course of Fizeş River.

We consider necessary to start an urgent programme for reducing the comblement in the system of the lakes from Geaca I and up to Sucutard II, because, at this moment, this is the most damaged sector and eventually to think of a new way of using them. Thus, it would be recommended to include the settings from Geaca I and Roşieni into the category of protected areas, having the fact that another reservation, "Lacul şi Valea Legii" Ornithic Reservation was established nearby, and the fact that here the bog lands and their specific vegetation, occupy an important surface. This way this mycroregion would shape into a humid zone used for protection of the migratory birds in the central- northern part of Transylvania Plain (according to Law no. 5/1991).

The area situated on the main course of Fizeş River and that comprises the settings from Geaca II, Geaca III, Sucutard I and Sucutard II could be included in the circuit for tourism, being located nearby the main county road that crosses over the plain and that wouldn't anyhow affect the settings down the river, if the measures for protection would be appropriate.

In this sector a large number of settlements are located, though very agglomerated and dense, where the rural tourism could be implemented and developed; in the context of the strategy of development, these areas are included in National Territorial Administration Plan and the Regional Territorial and Administration Plan in the first phase of development. So that the ecosystem of Ţaga Mare and Ţaga Mică lakes shouldn't be affected, the first measure (and the cheapest one) to take, is for decreasing the level of comblement, for maintaining the optimum qualities of the water for the activities with a sportive character, and so on, would be to resize these lakes into smaller ones, by building a parallel channel with the right bank of accumulations (the area where the most important affluents are crossing), and which, when floods, would conduct the transported alluvia on the most abrupt slope/versant.

Some attention should be paid to the lakes situated between the sliding waves, as those from Pogăceaua, Dătăşeni şi Archiud, which, now, are entirely neglected.

The SWOT analysis of the clear water lakes in Transylvania Plain

Instead of conclusions, the most appropriate way of ending the present study is to try to create a diagnostic analysis of the studied area, which would highlight the positive and negative aspects of the actual management and also the proposals for a sustainable management of the lakes. Underlining the particularities of the sustaining component, as those of the existent situation demographically, economically, socially, and environmentally speaking, it therefore allows distinguishing the functions and dysfunctions, the advantages and disadvantages of the territorial structure of the system. According to the principles of SWOT analysis, they group together the following aspects: strengths, weaknesses, opportunities, threats.

Strengths:	**Opportunities:**
The presence of the lacustrine surfaces that determine a variation of the landscape in Transylvania Plain. A positive influence of the adjacent topoclimates and microclimates. A relatively uniform spread on the two important watercourses that drain the Plain. A significant morpho-hydrographical potential for future facilities. An important area for sportive fishing. It has the role of fading out the flood waves and of regularizing the transport of nutrients and/or polluting items. A potential of position comparing to the important urban centres of the region. A high potential of biodiversity, embodied in the existence of some protected areas and reservations. An interest of some decisional factors of different ranks in preserving the natural heritage. An optimum shaping of the two functional regions, along the main valleys.	The chances to valorise the potential of the landscape The preservation and/or extension of the lacustrine surfaces. The opportunity of the numerous human communities to valorise the resources. The consolidation and regional development at a distance. The perspective to develop the sportive fishing and to implement some projects for creating and encouraging the piscicultural farms. The improvement of the perception about the hydro-chemical risk. The potential of valorisation for tourism. The capacity of the nongovernmental organizations to offer services about managerial assistance and training. The development and maintenance of the protected areas network for preserving biodiversity. The accession of some European funds through pre-accession programmes like ISPA, SAPARD, PHARE.
Weaknesses:	**Threats:**
Friable subsoil (mostly shale and clay). The presence of accentuated slopes in the neighbourhoods of lakes. The tendency of clime to become arid. The presence of a monotone vegetative cover, mainly grassy fields, a small level of forestation. The considerable extension of the arable fields and the use of improper agro-technical measures (working the land along the slope). The location of the animal and human organic waste in the immediate neighbourhood of the lakes basins. The excessive use of the chemical fertilizers on the agricultural surfaces in the hydrographical basins. The lack of a system of management for pisciculture, including the existence of piscicultural poaches. Locating the localities precincts in the neighbourhood of lakes. A superficial ecological education and civic conscience.	Great potential for erosion. Reducing the water reserves and modifying water chemical composition. A significant transport of erosive material directly into the bottom basin of the lake. The exposure of the fields to erosive factors. Growing the quantities of friable material with the possibility of being mobilized towards major and minor tracks and also to the lacustrine cuvetele. Biological and bacteria pollution of the lakes' water. High epidemiologic risk in the affected areas. Growing the quantities of nutrients in the lakes' water and accelerating the process of eutrofizare. The using up of the existing ihtiofauna. The high demographical pressure with the risk of pollution. The maintenance of the indifference mentality towards the problems of preserving the environment.

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