



## THE CHLOROSODIUM MINERAL WATERS IN CLUJ COUNTY, LASTING TOURISTIC PROTECTION AND CAPITALIZATION

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**ABSTRACT.** – **The chlorosodium mineral waters in Cluj County, lasting touristic protection and capitalization.** This study represents a continuation of the research and assessment of the resources of chlorosodium mineral waters on the territory of Transylvania Depression, especially regarding the appearance of salt springs, which are still not to be found in the literature of specialty.

The first step was made by the researcher Chintăuan Ioan, Doctor in Geology for Bistrița-Năsăud County in 2002, and it was continued by the authors of this study, in the first volume dedicated to the Air & Water conference from 2010, for Sibiu County.

Therefore, Cluj County will be analysed this time, a county to which certain researches have been done before. Field research could be also added to these, representing the only possibility to update the data regarding the existent salt springs.

The first examples already known are the chlorosodium mineral waters billeted in lakes situated in Turda, Cojocna, Sic and Ocna Dejului. As locations with chlorosodium mineral waters which appear at the surface under the form of salt springs with a salinity exceeding 1 g/l, as compared to the 4 ones specified, firstly the old, abandoned resorts from Someșeni are to be remembered and the lake with salt water formed in the place of a spring from Pata that is found near the garbage pit of Cluj-Napoca Municipality and many other spots with salt springs found on the map of Cluj County, such as those located from north towards south: Mica, Gherla, Gădălin, Geaca, Micești, Valea Florilor, etc.

As far as the protection of these resources is concerned, the main debated problems are related to phenomena such as their clogging and sweetening, which determines many springs of chlorosodium mineral waters to become ephemeral.

As regards the touristic exploitation of these touristic localities, the only arranged are the one situated in Turda, which is declared to be a touristic balneal resort, Cojocna, Ocna Dejului, and with an incipient character Gherla-Silivaș and Sic. The other locations are simply appearances of salt waters, some used in the households of the natives.

**Keywords:** spring of salt waters, salt lakes, clogging, sweetening.

### 1. THE TERRITORIAL REPARTITION OF THE CHLOROSODIUM MINERAL WATERS IN CLUJ COUNTY

As a direct consequence of the anterior resource of bibliographical, from some anterior articles of salt waters resources from Cluj county, but also of the realization of some field research in order to analyze on spot, it result that in this

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county the salt waters sources are quite numerous and concentrated especially in the east part of the Transylvanian Basin.

According to the geographical literature it has been insisted, only on those famous touristical arrangements, of a touristical importance as Ocna Dejului, Sic, Someșeni, Cojocna and Turda.

The rest of the location with salt waters will be analyzed to evaluated the current situation, even if they aren't as such a great interest, being less famous.

**Table 1. The current situation of chlorosodic mineral spring in Cluj County**

Nr.	location	administrative-teritory	no of springs	current situation
1.	Ocna Dejului	DEJ	1	existed
2.	Sic	SIC	4	arranged
3.	Someșeni	CLUJ-NAPOCA	16	abandoned
4.	Cojocna	COJOCNA	5	arranged
5.	Turda	TURDA	-	only lakes
6.	Sânmarghita	MICA	1	abandoned
7.	Nireș	MICA	1	arranged
8.	Unguraș	UNGURAȘ	1	salt massive
9.	Bunești	MINTIU GHERLII	1	abandoned
10.	Silivaș	GHERLA	1	existed
11.	Sărata	PĂNTICEU	-	disappeared
12.	Sântejude	ȚAGA	1	abandoned
13.	Lacu	GEACA	1	abandoned
14.	Gădălin	JUCU	1	arranged
15.	Pata	APAHIDA	4	arranged
16.	Valea Florilor	PLOSCOȘ	2	existed
17.	Lobodaș	PLOSCOȘ	1	existed
18.	Micești	TURENI	1	arranged

### 1.1. Ocna Dejului

The area with chlorosodium mineral waters is situated on 2 sectors, first in Codorului Valley in the north, where were the first roman's exploitation, now gather and the second in the south east where there is a current salt mine exploitation.

The latter sector is called Sărata Valley, the transformation connected to the anthropical influence which let disappearance of the former lakes Ștefan and Iosif, but also the transformation connected to the Codor sector have let to the disappearance to the many lakes, and the number of the lake from 14 in 1969 to only 2 in the present: Cabdic lake in Codor sector and Minei Mari lake in Sărata Valley sector.

If the first called „La Toroc” is arranged for balneation, due to the therapeutically quality of the water and it is geographical position far away from the mine exploitation and to with access to the road with Dej. The second could be declared nation reservation and including for the area visit together with the salt mine and the surrounding area where other exploitation in belt system have been made.



### **1.2. Sic**

The chlorosodical mineral water resources are to be found in the east of the area in Sărata Valley, in the form of the waterside, wide and swampy surrounded which make up of typical salt relief, the complex contains 3 antroposalin lakes 2 on the right of Sărata Valley Băilor lake and Nirțului lake, and one of the left side of Cipan hill (Albastru lake).

All the 3 lakes are formed from on the top of former mines type bell, if the first 2 once remain salty the blue lakes is in a continues sweetening process because of the lack of water connect with the salt wall.

Due to the current situation of the lakes in Sic only one the lakes has touristic potential namely Băilor lake which has already function as a pool in the past. After some changes have been made and can be including the balnear touristic circuit, especially due to it s access being located in the village, but more for it s therapeutically qualities. The salt spring are arranged in the form of four wells located in the south part of the village within the reservation.

### **1.3. Someșeni**

Here we can find the most numerous spring with chlorosodical mineral waters of hyposalt type. Someșeni is situated the outskirts of Cluj-Napoca, which increases its value.

Although the former balnear arrangement is totally abandoned, we can distinguish a number of 16 hypo salt spring, unfortunately more than half of the spring are silting only the springs no 1 and no2 have the greatest debit of 300 liter per day, the same situation we can at spring 13,14,15, and 16.

The springs have the following characteristic , the value of the salt is between 2,3 and 10 g/l, with high radioactivity, mineralization and other properties in case of some treatments, also in these area near the springs a series of basins have been arranged of series of polls, some of the were use for balneation in the past. According to the reality on the field only 7 out of 10 can be distinguished.

### **1.4. Cojocna**

In the past the number of exploitation summed 6, and after their abandoning, it resulted an area with more lakes, placed in the east of the village. Cojocna is crossed by Sarat river which formed a basin with, steep slopes and an inferior flat wide part. Where the salt lakes can be found a part of the village.

The only salt lakes left are Băilor and Durgău extensively use for balneation, even for the beginning of the last century, especially in the present. Except these lakes there a series of former smaller lakes, like some swamps.

The salt springs waters are numerous and are spread around the village in four different areas. The first would be Murătoarea Mare in the east of the former salt lakes, where 2 unarranged spring can be found, the second in the south of the former salt lakes, in the area called La Cadardeau , where an arranged well with the salt waters can be found , third in the direction of Cara village in the area of the railways and fourth on the DC76, which leads to Boju village. In the last 2 areas the sources of salt waters are arranged are expose to the risk of silting and sweetening.



### 1.5. Turda

The analyze territory is situated in the north east of the most important town with salt waters, from the Transilvanian Basin. Here in 2 different areas 2 salt missives in the form of some bows have been formed, lately spoiled by some external agents. In the north of the Sarata Valley and in the south the Microbasin Turda Băi formed by the erosion of Arieș river.

In the north, the eroded salt massive from Sărata Valley has a surface of approximately 25.000 mp in which existed seven exploitation in bell type, from which we have only 5 lakes today, because Caroline lake has been covered, by gound sliding, and the former lake, has been completed silted.

Now there are only 5 lakes left: Durgău, Ocnei Mici, Sulfuros, Ocnei și Rotund, from which only the letter can be use in a balneary purpose, being already.

In the south area which is the wider and flatter area, we can find the micro basin Turda Bai formed by gradual erosion, due the elimination of the sedimentary strata by Arieșul river leading of a erosion surface 94.000 mp (T. Pânzaru, 1986).

The salt lakes are important from a touristical point of view are situated in the easth of the micro basin and totalize 4. All of them are antroposalin the 3 lakes area carstosalin, of some dimension being silted. The antroposalin lakes: Roman, Tarzan, Cichi and Privighetorii have been formed in medieval times in an area where salt was closer to the surface.

### 1.6. The Areas with Salt Springs

We talk in consideration with chlorosodical mineral springs which have different salt degrees and which have a punctiform character.

Starting from the north side on the territory of Mica village 2 spring with chlorosodical near the villages *Sânmargină* and *Nireș*. If in the first location the spring si arranged and exploited by its inhabitants in the second area is not exploited at all and is in danger of silted. In the near by is a small salt massive, which appear to the surface at the limed with *Unguraș* with small spring can be formed.

Near Gherla in the south part small , have been discovered in the past near the village *Silivaș*, where a small pool was arranged. Now this small waters is used to carry water to some covered pools arranged in Gherla.

Another area in the north of Gherla is *Bunești* village, to administrative territory of Mintiu Gherlii.

In *Sărata* from the administrative territory of Panceu, the current resources have reveal the fact that although, these taxonomy related to salt exist in this location there is no clue that here had been a salt spring, although in been motion in some bibliographical sources.

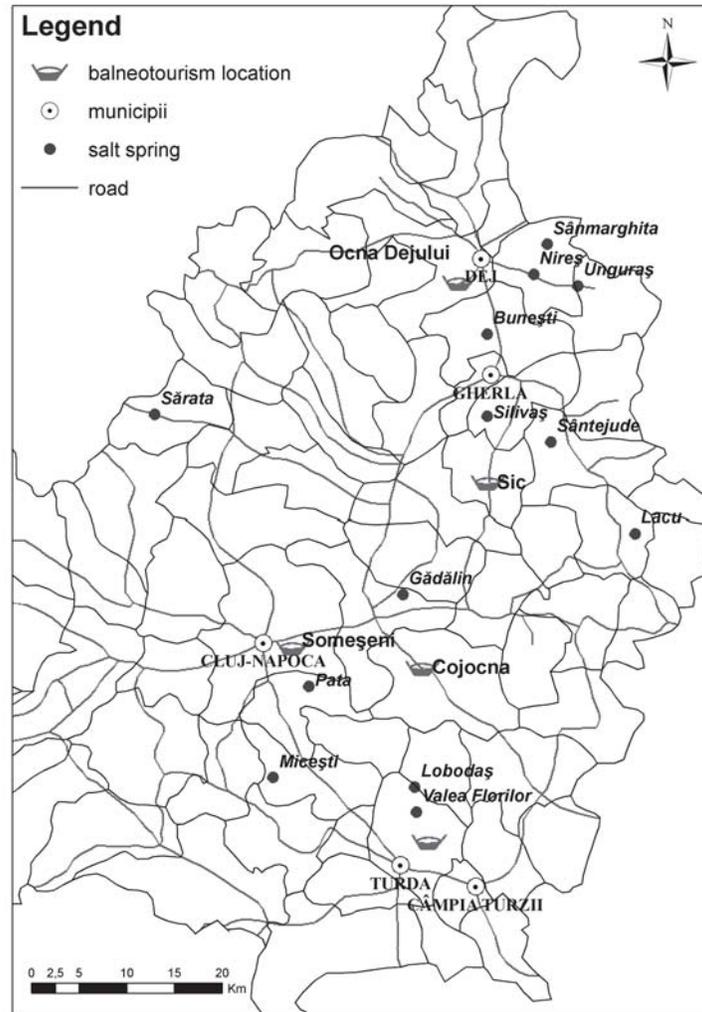
In the area of hydrographical basin of Fizeș river there are 2 location with chlorosodium mineral water, the first at *Sântejude* which appear after an excavation and a another one in the center of *Lacu* village from Geaca administrative territory an arranged but use by the inhabitants.

On the territory of the Jucu Comune in the near by *Gădălin* village was a spring with the chlorosodium mineral water which has recently, use by the inhabitants and arranged like a pool for balneary purpose in the summer.



There are many spring with chlorododium mineral waters on the territory of the commune *Ploscoș* due to the existence of salt closed to the surface. The spring can be found in the nearby the villages *Valea Florilor* and *Lobodaș*.

The last location with chlorosodium mineral waters springs is in the south of village *Micești*. Where the inhabitants succeeded in arranging the existing springs and this was to become a good salt water supply source.



**Fig.1. The Cluj County. The map of the chlorosodium mineral waters resources**



## **2. POSIBILITIES OF TURISTIC EXPLOITATION OF THE CHLOROSODIUM MINERAL WATERS IN CLUJ COUNTY. CASE OF STUDY: OCNA DEJULUI AND COJOCNA**

The touristic potential of the chlorosodium mineral water resources is very high in the main location in Cluj County and now the two touristic arranging with salt waters are a great importance. This haven't declared balnear resort yet.

Ocna Dejului and Cojocna where recently investments with the greater project, which has been recently finalized. The project started in 2008 and finished 2010.

Once this project has been made for location with salt waters Ocna Dejului and Cojocna from Cluj county and Figa from Bistrița-Năsăud already finalized.

The chlorosodium mineral waters resources from the existent lakes have a great touristic potential, due to the quality arrangement which have been made lately at *Ocna Dejului*. Investments have been around Cabdic lake and two 2,1 mil. euro have been spent, through this lake has been arranged and ecologies and the surrounding area an exterior pool was built, an interior pool with warm water, a modern beach, access alley and more sport grounds.

At *Cojocna* the investments was done around the lakes Bailor and Durgau, both lake has been arranged with wooden platforms around, sandy beaches, access alley, sports ground a small interior spa with warm water pool and sauna, used more in overseason.

After the finalization of the project from Cojocna and Ocna Dejului. It has been realized that they can be resorts of local interest if in the next period investments will also be made in the accommodations.

## **3. PROBLEMS RELATED TO THE PROTECTION OF THE EXISTANT CHLOROSODIUM MINERAL WATER RESOURCES. CASE STUDY THE SALT LAKES FROM TURDA AND THE EXTINCT SALT SPRING**

Related to the quality of the salt waters the current physical phenomena with a negative impact are which can cause important changes in a very short period of time such as: silting, the sweetening of the salt lakes and the disappearing of the spring with chlorosodical mineral water.

The first example could be analyzed in the area the lakes from *Sărata Valley* from Turda administrative area. If we analyze each of the 5 lakes we can observe differences both in their evolution and in the degree of arranging and anthropic intervention.

Here the evolution is extremely fast if until now a lake disappear because of the ground silting and the another sweetened because of the silting process due to the sandy flows from the slopes

Although to of these, Minei Mare lake and Rotund lake have been recently arranged this was something superficial and the terrace slopes are in continues evolution, phenomena like sandy flows and ground silting being present, because these haven't been planted with vegetation.



The high number of the *salt springs* from Cluj county is in a continues process of sweetening, silting and disappearance, This is one of the main problems of the study, which can not be solve with the intervention of local authorities of the gropes of local initiative such as GAL or NGO and even of the inhabitants who use these sources of salt waters.

There sources of chlorosodical mineral water can be arranged in the form of some spring with concrete on the edge, in the form of some covert wooden wells, of some drilling and in the near by small pools can be built.

The situation of Cluj County regarding the high risk of these sources of chlorosodium mineral waters can be found in all the Transylvanian Basin for the moment the research and storage in a former faze. Plus the fact that up to present there is no general project for protection and the arranging of this including their salvation.

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