Fresh Rivers And Salt Springs: Modern Management And Ethno-Management Of Water Resources In Eastern Romania

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Abstract. The present study aims to evaluate the competition between the modern management and the ethno-management of the water resources from Eastern Romania. The employment of specific hydrological, ethno-archaeological and spatial analysis methods yielded well delimited specific areas, corresponding to the levels of NaCl present in rivers and springs. The waters from the mountainous and piedmont areas of the Carpathians are directly influenced by the presence of salt deposits. The reduced salinity of the larger water arteries is due to the important liquid discharges that dilute the salts. The recent ethno-archaeological investigations that focused on the approximately 200 salt springs which were identified in the sub-Carpathian areas of Moldavia, have highlighted a well-structured ethno-management system. The modern management of the fresh water resources, developed under governmental and local communal financial support, must be continued with increased intensity. Conversely, an involvement into the ethno-management of the salt-water springs must be generally prohibited; only seldomly, in cases of uttermost necessity, can it interfere with the 8.000-years-old ethno-management of these salt-water springs.

Keywords: water quality, salt springs, ethno-archaeology, ethno-management, Romania, salinity

1. Introduction

The raw-salt deposits from Romania are extremely large and concentrate in the Transylvanian Depression and the extra-Carpathian areas between the valleys of the Moldova River to the north and the Motru River to the west, viz. the Moldavian, the Curvature and the Getian Subcarpathians (Albu and Baltes, 1983; Bagu and Mocanu, 1984; Papainopol, 1982).

The present study involves the analysis of several chemical parameters (salinity) of the surface waters from the Siret and Prut hydrographic basins (Moldavia region – Romania). Concurrently, the study aims to highlight the manners in which the salt waters (particularly the salt-water springs) have been exploited and used by the human communities, especially the rural and remote ones. The study is at the forefront of the ethno-archaeology of the surface waters from Romania, and it focuses on the Moldavian area. The current ethno-management, as an inheritor of the pre-industrial traditions and habits, is also featured in the study.

Salt has played an essential role in sustaining human and animal health, in preserving food during the unproductive seasons, in influencing the stability and sustenance of the human habitat, etc. (Alexianu et al., 2007, 2011). These facts are borne out by the historical tendency to control, including from a military point-of-view, the raw salt deposits from the inland areas (Parman, 2002; Weller, 2004). Romania, particularly in the Carpathian Foothills of Moldavia, the traces of Europe's oldest salt works have been found (starring with the Starčevo-Criş culture) (Weller and Dumitroaia, 2005).

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International ethnographical, ethno-historical and ethno-archaeological approaches to the study of salt use have produced notable results (Weller, 2006; Williams, 1999). The present paper attempts to highlight the link between the aquatic environment from Moldavia on one side, and the manner of use and artisanal processing of the salt waters (springs and streams) on the other.

Based on uniformitarianist principles, a diachronic reconstruction of the manner of use of the water (generally) and salt-water (particularly) resources has been attempted. The exploitation of the salt waters continues and the local ethno-management is still in effect, especially because of the sapidness of the brine collected from these springs. The notion of ethno-management and ethno-ecology are pertinently and cogently used in scientific works about the local processing of resources and the land partitioning schemes in use at communal or regional levels (Asiamah and Dwomo, 2009; Hern, 2003; Whiteford, 1997).

2. Regional setting

The hydrographical basins of the Siret and Prut rivers occupy the western half of the Romanian historical region known as Moldavia. The left side of the Prut hydrographic basin is situated on the territory of the Republic of Moldova. Both of the rivers originate in Ukraine, but most of the drainage basins are on Romanian territory. The area in question comprises several landforms: the Eastern Carpathians, the Curvature Carpathians, the Suceava Plateau, the Moldavian Subcarpathians, the Moldavian Plain, the Bârlad Plateau, and the Lower Siret Plain (Figure 1).

The investigated Subcarpathian area spreads between the Moldova Valley in the north and the Buzău Valley at the south. It comprises two Subcarpathian landform elements: the Moldavian Subcarpathians and a segment of the Curvature Subcarpathians.

3. Materials and methods

The field measurements consisted of summer campaigns in all of the landforms and drainage basins from Eastern Romania, overlapping the historical region of Moldavia, focusing on the greater hydrographic basins of the Siret and Prut rivers.

The sample collecting campaign took place between 2009 and 2011, in the August of each year, the month when the highest temperatures have been invariably recorded in the past and when the discharges (of the springs and water streams) were at their lowest. The expeditionary measurements were performed using the HACH Multiparameter, and targeted the salinity of the surface waters (water streams, springs, lakes).
108 hydrographic arteries, of various sizes, and 221 springs (salty and fresh) from the Subcarpathian area were considered for the study. Most of the springs were located by courtesy of the information provided by the local inhabitants. The identification of only a small segment relied on cartographic information. Not all of the analysed springs have a high level of salinity. Some of them are freshwater springs and are exploited for other purposes, usually for collecting drinking water or for domestic use. Some of the samples, particularly those with high salinity, were analysed in a laboratory so as to establish their elemental composition.

The study also examined the manner of use of the waters by the local human communities, particularly by the rural and the remote ones. Given the scale of the non-industrial use of the salt springs by the rural communities, we can safely state that the concept of ethno-management is entirely appropriate to express the socio-economic system developed around the saltwater springs. Alongside the field observations, ethnographic inquiries have also been made about the importance played by the saltwater springs in the life of the local communities and the manner of use on a local and regional level. A conclusive poignant reminder is that many of the encountered traditional activities should be preserved and encouraged as valuable elements of the cultural heritage of the rural communities, despite their apparent economic unprofitability.

The case study considered the salt springs that are currently in use or which we are certain that they have been used in the past by the local human communities. From the entire catalogue of saltwater springs, only those that are or were exploited by humans, that is to say, those found in accessible areas, have been taken into consideration for the study and were subjected to analyses and related investigations. The method of spatial analysis specific to the geographical research with applicability in ethno-archaeology has been tested. The extension of this method for the entire Carpathian and extra-Carpathian area is envisaged for the future.
4. Results

The hydrographic network of the two basins is extensive, yet the streams are, for the most part, of a temporary character. The study hereby concerned only the large hydrographic arteries, of particular importance for certain landform units or human communities. The springs with large discharge rates, of crucial importance for the feeding of the water courses or for the local economies, have been selected for study on similar grounds.

A clear delimitation is observed between the rivers from the northern half of the Moldavian Plateau (the Moldavian Plain and the Central Moldavian Plateau) and those from the south-western part of the Siret hydrographic basin (the Curvature Subcarpathians). With small exceptions, the rest of the basins harbour drainage networks influenced by salinity (Soloneţ, Sărata, and Tazlău) (Figure 2). Most of the rivers are freshwater, and incidentally they are also the largest arteries of the land, with notable discharge rates.

Only six rivers have salinity over 0.5 mg/L: Volovăţ – 0.7 (tributary of the Prut); Roşu – 0.7 (idem); Cacaina – 0.6 (tributary of the Bahlui River); Sărata – 7.1 (tributary of the Moldova River); Sărata – 0.6 (tributary of the Şuşita River); and Sărățel – 0.8 (tributary of the Buzău River). It is the brooks that are most often display increased salinity, because of the influx of saline water from the saltwater springs. Unfortunately, because of the transitional continental climate, with long periods of draughts, these brooks frequently dry out.

The surface freshwater streams are used in all the domains of activity: domestic (drinking water), industry, and agriculture. The management of the freshwater resources (surface and underground) is a modern, supervised, sector, of a fundamentally distinct character than the ancestral management of the saline waters. The saltwater sources, particularly the springs, have been and are currently exploited by the rural communities throughout Moldavia (from the mountains, the piedmont and the plains).

221 saline and freshwater springs have been identified in the investigated extra-Carpathian area; they are distributed among the following counties: 50 in Suceava, 70 in Neamţ, 78 in Bacău, and 23 in Vrancea. A mention should be made of the fact that the salt water springs influence the salinity only of the smaller streams, which most often dry-up during summer. The only permanent brooks whose salinity levels are strongly influenced by the salt water springs are the Sărata (from around the spa town of Oglinzi, Neamţ county) and the Sărata from the Soveja Depression (Vrancea County).

Most of the salt water springs from the eastern extra-Carpathian landform unit belong to the area of development of raw salt (NaCl), which often outcrops to the surface. An exploitation of the raw salt on an industrial scale takes does not take place anywhere around a salt water spring, but only in salt mines (Târgu Ocna, Cacica). Given the reduced discharge of the saltwater springs, only an artisanal, rudimentary, exploitation takes place, relying on the waters that washes the raw salt from be bedrock and rises to the surface as highly salinised waters.

The salt from the eastern extra-Carpathian area is used in solid and liquid solution forms. Until the first half of the 20th century, the salt from liquid solution was habitually extracted through the thermal processing of the brine, producing re-crystallised salt (Rmn. huscă). Today, this process if seldomly used. The brine from saltwater springs (also called "licks" or "salines") is widely used for various food processing activities, such as for cheese making, animal and vegetable food preservation, on a household (domestic) and community (village eating establishments, monastic complexes) level, for processing sheep hides, etc. The spring brine is likewise used in animal feeding, by sprinkling the fodder or as an ingredient in broth for pigs (Alexianu et al., 2007; Dumitroaia, 1987). Haystacks (particularly from oat hay) are often sprayed with brine for protection against rodents (Alexianu et al., 2007).

Obvious relations exist between the prehistorical settlements belonging to the Starčevo-Criş and Cucuteni cultures (6000–3500 BC) and most of the salt water springs. This fact is particularly observable for the springs from the sub-Carpathian area of the Neamţ County, specifically for the Lunca–Oglinzi–Târgu Neamţ sector, for the Poduri sector from Bacău County (Monah et al., 2003; Weller et al., 2007), and for the Cucuteni-Cetăţuie sector with the spring from Balş-Arcaci, in Iaşi County. The spatial relations are indicated by the presence of Cucuteni briquetage ceramic material inside several elevated settlements: Oglinzi-Cetăţuia and Răuceşti-Munteni. It would seem that the elevated Cucuteni settlements, fortified or not, played key roles in controlling and exploiting the salt from these above-mentioned sectors. They occupy vantage
points from which the denizens exerted control over the access routes to the salt water springs, and over the distribution of the produced salt "cakes".

In contrast with the classical archaeological approach, the current endeavour focuses mostly on the natural resources, and not on the archaeological artefacts per se (Weller et al., 2007).

Field inquiries were conducted in order to exactly establish the areas of salt water exploitation and the actual manner of use of these springs. They consisted of ethnographic questioning of the individuals residing in the proximity of the springs (58 subjects), in the villages (105 subjects) and the shepherds' hamlets (13 subjects) from around the springs. The investigations were carried out in two distinct stages: from 2004 to 2007, and from 2008 to 2011 (Figure 3).

The ethnographical research carried out so far show that three types of areas of distribution come from the salt water springs, according to the spatial expansion of settlements which used this salt water. This spatial extension was determined by the discharge, salt concentration and purity of the salt spring, by the taste characteristics of the brine (Rmn. *slatină* or *saramură*), by its accessibility (by different transportation means or without transport). The three types have been defined in the following terms (Figure 4): 1) village area, with springs of strictly local importance, used by a maximum of three villages situated at a distance of at least 5 kilometres; 2) municipal or supra-village area, in the case of springs used by four villages situated at a distance up to 20 km; 3) supra-municipal area, in the case of springs used by numerous rural and urban places which exert attraction at great distances (Alexianu et al., 2011).

![Fig. 3. The locations where the inquiries on the location and use of the saltwater springs were conducted](image-url)
The real dimensions of salt water supply in the Moldavian sub-Carpathians come out in moments when, for different historic reasons (wars, temporary crisis of supply in times of peace), the supply system with common salt is not operative. Ethnographic inquiries have shown that in these situations transport can reach distances of up to 100 km.

By applying the method of spatial analysis, we could conclude that the network of salt water in Moldavian sub-Carpathians, according to ethnographic inquiries carried out, actually cover the needs of all rural (and in some cases urban) localities in the area mentioned. In some cases of supply with brine some situations have been identified of the partial overlapping of distribution areas of two different springs. The distance between a spring and the locality which uses it is not decisive for the act of supply, so that some salt springs located too close to each other are only used by few village people; most people opt for a further spring whose flow, high salinity and taste qualities, retention capacity or access facilities are superior. In principle, we can admit the existence of a radial scheme of water distribution from a main salt spring in most of the encompassing habitat.

Corroborating the ethnographic and archaeological information has shown that one has to operate the distinction, on one hand, between the simple supply and distribution of salt water, and, on the second hand, the production of re-crystallized salt (Rmn. husecă) from the salt springs and its distribution. As far as the first situation is concerned (salt water supply) on the basis of ethnographic questionnaires one could establish evidence of the following situations of relations between human communities and a salt spring (Alexianu et al., 2011).
4.1. Salt water supply point which practically corresponds with the area in direct proximity of salt spring:

Supply is short-term and depends on the total capacity of recipients used for transportation, on the flow of salt spring and on the number of persons involved in taking out salt water and pouring it into the recipients for transportation. It is a human activity which does not generate or leave traces, with the exception of some sherds from accidentally broken recipients (or now plastic bottles). In this category, there is all salt springs where sporadically fragments of archaeological ceramics have been found on the surface from one or several periods.

4.2. Dwellings which are supplied directly from a saltwater supply

Seasonal dwellings of the sheepfold (Rmn. Stână) type; the salt spring is sometimes used to prepare sweet cheese, only as a foodstuff for shepherds; especially savoury are the pieces of sweet sheep cheese (Rmn. caș, from Lat. caseus) short time dipped in salt water before they are consumed (Figure 5). Identification of seasonal locations of this type when archaeological research takes place most certainly represents a very difficult task, but archaeologists must be warned about the possibility of the existence of such locations. Some agglomerations of ceramic fragments identical to those by a salt spring, situated at a distance of about 1 one or two kilometres from a spring, could indicate this kind of seasonal settlements for ovines and bovines.

- The settlements as such; ethnographic inquiries have noted that all villages around a spring use salt water as such. Two distinct situations could be identified. 1) With a single salt spring in a given area or with a salt spring of superior taste qualities, great flow and easy access in an area with several salt springs. Salt water supply today is carried out from settlements situated at a distance of about 10-15 kilometres from the respective spring; distances may reach 25-30 kilometres. 2) When there are several salt springs of similar taste, flow and access possibilities, situated at a distance of 5-6 kilometres between each other, each of them is used in groups of two to three villages situated at a distance of two to three kilometres from the spring (Monah et al., 2003). In this case the distance of supply from each spring decreases, but the supply area has parameters comparable with the previous situation. 3) Settlements supplied indirectly with salt water, located between 40 to 50 and approximately 100 km from a salt spring. The distribution direction from direct users to settlements which use it is located in remote areas. According to inquiries carried out so far, salt water transport to settlements which are located so far away is more rarely attested; only in exceptional cases (the end of World War II and the following years, as a rule, salt water accompanied the transportation of re-crystallized salt obtained from a salt spring).

To conclude, use of salt water involves only the act of supply and generated a distribution network; more rarely a redistribution network. Today salt water supply is practised on a large scale and does not represent an indicator of poverty: it is used by different categories of economic and social status, mostly due to the quality of vegetable, cheese product and bacon conservation. With cheeses conservation even some (feta) cheese (Rmn. telemea) micro-production units use water from salt springs intensively.

Before the modern production of crystallized salt (popularly known as huscă in Romanian), it is advisable to underline the very probable chronological continuity of the choices which led to salt exploitation of a spring rather than another one. Indeed, salt springs with archaeological evidence from the Neolithic and the Chalcolithic exploitation are systematically an important water flow (or a well with a big capacity) and a very high salinity. It is also for these same reasons that these springs were, even recently, exploited for crystallized salt.

The practice used for re-crystallization of salt by boiling natural brine, which stopped in the 1995-1996, involved the following three main strategies: 1) production of re-crystallized salt (popularly known as huscă) in the proximity of the salt spring; 2) production of huscă in seasonal habitats such as isolated sheepfold in the mountains (Rmn. stână); 3) production of huscă in villages (in the courtyard or more rarely inside the houses). A cauldron on a support, sometimes suspended, was used for the brine evaporation.
The following three stages in the use of re-crystallized salt from salt springs can be listed mostly in the northern half of the area investigated: 1) salt water supply, 2) production of re-crystallized salt and 3) its (re)distribution. The relationship between human communities and the salt spring becomes more complex.

Ethnographic research has brought important precisions as far as the use of natural brine and salt in general (Figure 6). There are more uses than has been generally considered by archaeologists. Firstly, we would like to emphasize the fact that salt water is still used in large proportions by adding it directly into different dishes and foods. Salt water is used both for family and collective (in some restaurants, monasteries, etc.) consumption.

Salt water has a generalized use in different mixtures of food, particularly for pig food. Forage given to cattle is sprinkled with salt water. Salt water is generally used mostly for the conservation of bacon (Rmn. slănina) and pork, of various types of cheeses, of various vegetables or greens.

Fig. 5. Salt water supply using cart (Poiana Slatinei, Lunca, Vânatori, Neamţ; Hălăbutoaia, Tolici, Petricani, Neamţ) and ancient barrel for brine transport (Cucuiuş, Solonţi, Bacău)

Fig. 6. Salt springs densities and traditional uses in Neamţ county
Important quantities (500-3000 l) are used by micro-enterprises, mostly by cheese factories which produce feta-type cheese (Rmn. telemea).

Some surprising results have been the use of salt water and salt as a remedy in various diseases. Peasants in the Moldavian sub-Carpathians use a wide variety of procedures, some of which are rather unique in Europe (such as heating stones for salt water in the case of treatment of rheumatism in large wooden baths) (Figure 7).

Recent research has shown that a considerable part of the halotherapeutic practices identified by ethnographic inquiries carried out in Moldavia can be found in the ancient Greco-Roman world. The common clinical spectre of ancient and modern (but traditional) therapies includes gum and dental diseases, skin burns, headaches, angina, tonsillitis, boils, inflammations of the skin and dermatitis, kidney and stomach pains, lumbar and leg pains, joint pains, dog or cat bites, frostbite, mouth and ear diseases, bleeding (Curcă, 2007; Sandu et al., 2010). The existence of some common therapies in such different chronological and cultural spaces implies that salt has had a strong therapeutic dimension in prehistory, a reality commonly neglected by archaeologists.

Fig. 7. Traditional and modern therapeutic baths in salt water (Vizantea Mănăstirească, Vizantea Livezi, Vrancea; Băile Sărata, Nicolae Bălcescu, Bacău)

The water courses with increased salinity are not used since their salt concentration is insignificant and thus unsuitable for the purposes described above. Because high salinity is present only on the upper sectors of the streams, close to the springs, they are used exclusively. Only the salt crusts formed during the summer dry up are used. Only from this point of view can we state that the salts from the water courses are also used artisanally.

5. Discussion

Even though the total discharge of the Siret and Prut hydrographic basins is relatively large (by comparison with the rest of the water courses running on Romanian territory), overall, the water resources available to the population are scarce, since they must be considered in proportion to the number of inhabitants of the region. From this last point of view, Moldavia is the most populated and the region with the highest density in Romania.

Most of the water streams from the Moldavian Plateau are relatively small, with very limited discharges. Most of the streams from the 1st, 2nd and 3rd categories of the Horton-Strahler scheme for stream network classification dry up on an yearly basis, mostly during the summer (due to the lack of precipitations and the increased evapotranspiration), but also during the winter (because of the general freezing). In this case, the water resources from most areas of the Moldavian Plateau are limited or unavailable. The need to preserve the water lead to the development in the counties of Iaşi and Botoşani, both in the Moldavian Plain, of a
multitude of artificial lakes. Thus, even if the two counties are among the poorest in water resources, they claim the second and the third place in terms of aquatic surface area. The building of the lakes was due to the lack, not abundance of water (Romanescu et al., 2005).

Another deceptive feature is the density of the hydrographic network, which, in this case, is extremely dense. This feature is due to the high friability of the geologic bed and the massive deforestation that took place in Eastern Romania. Most of the small-scale hydrographic arteries are waterless or carry water only during torrential rains. The permanent character of some local rivers is, in fact, mainly due to underground feeding. Most of the large-scale hydrographical arteries receive a subterranean inflow which accounts for 30–50% of the total discharge (Romanescu et al., 2011).

Noteworthy influences of the salt-water springs are only felt on small-scale rivers. The large-scale ones are fresh water rivers (the considerable discharge cause a strong dilution). The salt deposits or the salt bedrock exert influence only on underground water streams, which have a rather high concentration of salts due to the weak circulation of water in the underground system (low granulometry) and the reduced pluvial input. Nonetheless, the relatively reduced salt content in the rivers is due to limited underground input and the impact of rainwaters.

In the rural settlements, for other purposes only the water from the water-bearing stratum is used, but it is often contaminated with substances used in agriculture (nitrates and nitrites). The deeper waters are, in most cases, saline or hard, and this makes them unusable.

To prevent the further contraction of diseases, or even deaths (mostly of infants, more susceptible to nitrate/nitrite poisoning) caused by the consumption of polluted surface or underground waters, the Romanian government is currently investing generous funds provided by the European Union to supplying every Romanian settlement and community with quality drinkable running water.

For European prehistory, the Moldavian area is particularly important, with clearly distinguishable features: the endurance of ancestral practices of salt exploitation and capitalising, in the absence of mechanisation, economic organisation and judicial regulation (Alexianu et al., 2007). Even though refrigeration appliances have pervaded every corner of the country, the use of salt-water spring brine is still very much an on-going tradition in the Moldavian foothills.

The site of Poiana Slatinei from the village of Lunca (Vâlcea Comune, Neamţ County) is the most representative salt-water exploitation site from Moldavia and a point of reference for European prehistory. The area witnessed the discovery of three separate, undisturbed, archaeological deposits. The A area, the most important, is found near the actual spring. The collected archaeological material belong to the Neolithic and the Chalcolithic (the Starčevo-Criş, Linear Pottery, Precucuteni and Cucuteni cultures), the Bronze Age (the Costişa-Komarov and the Noua cultures), the High Middle Ages (the 10th-12th centuries), and the 19th century (Dumitroaia, 1987).

The conclusion is that there are two distinct forms of water management, co-existing despite the pressure from modern technology. The advanced one is upheld by the state or the private organisations from within the local communities. The primitive, ancestral, form is unsophisticated and outside the mainstream of modern state administration. The two intersect, for example, in the production of state-sanctioned foods with protected designation of origin: despite the cheaper price of industrially-produced salt, the brine is nonetheless used to ensure that the product acquires its specific taste and aroma.

The contemporary ethno-management of the salt-water springs is a development of the pre-industrial one. A good grasp of all of its aspects and peculiarities is the key to understanding the true complexity of the prehistoric exploitation practices, specifically, of what constitutes the oldest archaeologically-attested saltern in the world (Dumitroaia, 1987). The natural ecosystem from around the brine springs was also used by the prehistoric people in accord with the unwritten laws of rural economy (ethno-ecology).

For the eastern sub-Carpathian area, the following current uses of the salt waters have been recorded: human consumption (private or collective, food preservation – cheese, meat, bacon – and the local industrial enterprises producing traditional products); animal consumption (broths for pigs, spraying fodder); fodder preservative (particularly haystacks against rodents); human halotherapy (arthritis, skin conditions, swollen
legs, inflammations, open wounds, influenza and common colds, etc.); veterinary halotherapy (arthritis, sprain); crafts and industries (hide curing, stoves) etc.

The use of salt in liquid/solution state is to this day a strictly local activity. In the past, the re-crystallised salt, obtained by boiling the water away, was used for barter or in long-distance trading. Bartering was widely practiced especially during supply crisis; one such relatively recent episode occurred during and immediately after WW2. Today, bartering is informally practiced only between members from the same local community, often involving individuals unable to perform the activity by themselves, such as the elderly.

The information regarding the manner of exploitation and use of the salt-water springs, gathered from the ethnographic inquiries, has highlighted the tremendous ethno-archaeological potential of the Moldavian region. The ascertaining of the exact locations and manners of use of the salt-water springs has practical implications for various domains of activity: public healthcare (the determination of the poisonous trace elements in the brine); halotherapy (the contraindications of the traditional halotherapeutic practices); rural economy sustainability (determination of the parallel economy parameters); archaeological and ethnographical tourism (uncapitalised touristic potential).

From a cultural point-of-view, the present endeavour safeguards the rich intangible heritage developed around the salt-water springs. Paradoxically, the exploitation of the salt-water resources has witnessed a surge during the last 20 years, as the communist system was replaced by a capitalist market system promoting private entrepreneurship. Nevertheless, the practice will likely disappear entirely in the short future, as it has already in the rest of Europe. Despite this, the initiative of the local entrepreneurs is still commendable.

The endurance of traditional practices of exploitation and use of the brine springs in currently galvanised by the "green" trend, popular among modern consumers, with agritourism promoting the "homely" label revolving around traditional recipes transmitted through successive generations. At first sight, the exploitation of the salt-water springs would appear to be done predominantly by destitute individuals, but this latest research has shown that the brine from salt-water springs is mainly used by people well above the poverty line. The primary reason for the salt's consumption is its distinctively rich taste. This culinary predilection should be encouraged through governmental measures meant to invigorate the existing ethno-management and to boost the local tourism (agritourism, culinary tourism, ecotourism). This suggestion again touches upon the issue of the conflict between the traditional ethno-management and modern, state sponsored management.

Even though Romania is currently an industrial-agrarian state, it harbours countless examples of survivals of traditional behavioural patterns. This verdict is certainly valid for the rural areas, but less so for the urban areas where traditional practices are quasi-extinct.

6. Conclusions

The specificity of the geological bedrock from the Siret and Prut hydrographic basins directly influences the salinity of the underground and surface water courses. The human activities concerning the exploitation of salt-water resources are influenced to the same extent.

Most of the salt-water streams are found in the Moldavian Plain and the Curvature Subcarpathians. A very high salinity is indicative of springs; the rivers with limited sizes and discharge are strongly impacted by salinity, while the large-scale rivers, possessing a high dilution capacity, are fresh-water streams.

The fresh waters, particularly the surface ones, are exploited using modern methods and are extensively used in all the domains of economic activity. As a rule, the people from Eastern Romania use mostly running surface waters for consumption, and less from underground sources. Only the inhabitants of the rural areas use on a large-scale water from underground aquifers, which is most often contaminated with nitrates and nitrites. Over 80% of the wells from Moldavia produce water which is unsafe for human consumption.

The archaeological traces reveal that the salty waters have been used by the human communities since the Neolithic and the Chalcolithic. The findings are the oldest such vestiges in Europe and among the earliest
in the entire world. Concurrently, the prehistoric methods of exploitation and manners of use are more-or-less in effect today for most of the sites, perpetuated by the local population. The current ethno-management is a direct descendant of the pre-industrial practices. Unfortunately, because of the impact of modern industrial and household activity, these ancestral practices will quickly become extinct.

The emergence and development of human settlements was influenced by the presence of the salt-water springs and fresh-water streams in the area. The settlements which flourished mostly where those with access to the salt-water springs which provided a generous and steady supply of salt — once a highly sought and valued commodity.

The eastern extra-Carpathian area, specifically the Carpathian piedmont, is a region with has witnessed an economic development more pronounced than other regions from Eastern Romania. Besides the fact that it constitutes a transitional landform unit, linking the mountains with the lowlands, the regions holds various and abundant natural resources, including vast reserves of rock salt which, unsurprisingly, have also been exploited since prehistory.

Salt was once used as a commodity for trade (barter) throughout the entire region, but such commercial activities are seldomly encountered today. Of particular interest is the transmission and survival of primordial practices related to the exploitation and use of salt-water spring brine. Having this in mind, the local tourist industry should capitalise on the traditional use of the brine, promoting its cultural, culinary and therapeutic attributes. The governmental measures should not impinge on the existing ethno-management, especially since it is entirely in accord with the ecologist vision. Instead, the government should focus on and intensify the modern management of the fresh-water rivers.

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