



Consiliul Județean Bistrița-Năsăud



Complexul Muzeal Bistrița-Năsăud



**COMPLEXUL MUZEAL  
BISTRIȚA NĂSĂUD**

**STUDII ȘI CERCETĂRI**  
**Geology-Geography**

23-24

**BISTRIȚA**

2019

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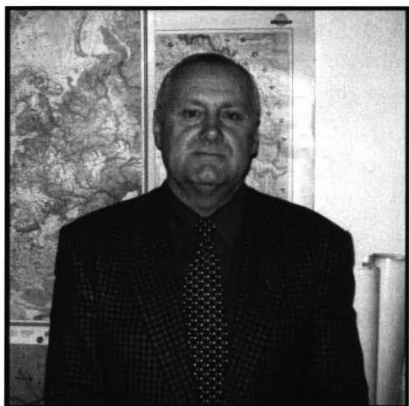
# CUPRINS. CONTENT. SOMMAIRE. INHALT

Eduard SCHUSTER, Nicolae BACIU, Andras-Istvan BARTA, Ioan BÎCA, Lia-Maria CIOANCA, Irina RABOȘAPCA, Marius HORGA O VIAȚĂ ÎN SLUJBA GEOGRAFIEI: CONF. UNIV. DR. MIRCEA-LEONTIN MUREȘIANU (1955 – 2019) ȘI DRAGOSTEA SA PENTRU PLAIURILE RODNENE.....	5
<b>GEOLOGY</b> .....	25
Marius HORGA, Izabella SABĂU, Lucian VAIDA, Marian BORDEIANU, Vlad A. CODREA ADDITIONAL DATA ON THE MAMMOTH FROM FÂNTÂNELE (BISTRIȚA-NĂSĂUD COUNTY).....	27
Ovidiu BARBU THE COAL LIFE CYCLE: CASE STUDY OF THE LIGNITE FROM JILȚ (GORJ DISTRICT).....	35
<b>GEOGRAPHY</b> .....	45
Marius POPESCU ASPECTS CONCERNING OF SUSTAINABLE TOURISM IN ADAMCLISI RURAL AREA .....	47
Eduard SCHUSTER, Lia-Maria CIOANCA THE SALT DEPOSITS FROM THE SECAȘELOR PLATEAU AND THEIR VALORISATION IN THE SALONTI TOURIST FACILITY FROM DRAȘOV, ALBA COUNTY .....	55
Lia-Maria CIOANCA EXPLOITING THE TOURIST POTENTIAL OF BISTRIȚA-NĂSĂUD COUNTY THROUGH A GREAT PROJECT: VIA TRANSILVANICA, A DREAM COME TRUE.....	63
Călin Cornel POP, Ana-Maria CORPADE, Cătălin Daniel POP, Sergiu PANIE, Aurelia-Daniela LAZAR, Cerasela-Cristina SĂPLĂCAN, Marinela RUSU GEOGRAPHIC AXES IN THE LOGIC OF SUSTAINABLE REGIONAL DEVELOPMENT .....	77



## O VIAȚĂ ÎN SLUJBA GEOGRAFIEI: CONF. UNIV. DR. MIRCEA-LEONTIN MUREȘIANU (1955 – 2019) ȘI DRAGOSTEA SA PENTRU PLAIIURILE RODNENE

Eduard SCHUSTER\*, Nicolae BACIU\*\*, Andras-Istvan BARTA\*, Ioan BÎCA\*,  
Lia-Maria CIOANCA\*, Irina RABOȘAPCA\*, Marius HORGA\*\*\*



Nu este niciodată o sarcină facilă aducerea în memorie a cuiva apropiat și trecut la cele veșnice, și cu atât mai mult a cuiva atât de apropiat și apreciat cum a fost regretatul nostru coleg și prieten Mircea Mureșianu. Pe de altă parte, este o datorie de onoare de a cinsti cum se cuvine memoria unuia dintre marii geografi ai județului Bistrița-Năsăud prin trecerea în revistă a celor mai importante momente și realizări pe plan profesional.

În demersul nostru de a realiza un portret biografic al celui care a fost conferențiarul univ. dr. Mircea-Leontin Mureșianu, am apelat atât la curriculum vitae și informații personale, cât și la caracterizări sau autobiografii, prezentări și gânduri postume care au fost publicate sau exprimate cu diverse ocazii.

### Cine a fost Mircea Mureșianu?

„Născut la Rodna, sub cerul falnicilor Munți ai Rodnei și zămislit din pământul fertil al Țării Năsăudului, profesorul Mircea Mureșianu s-a contopit cu natura generoasă a meleagurilor natale și cu oamenii vrednici ai locurilor pe care i-a iubit și i-a prețuit necondiționat” – așa începe caracterizarea făcută profesorului Mircea Mureșianu de către Liviu Păiuș în a doua ediție a cărții *Monografia comunei Rodna Veche* (2014).

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Despre prima parte a vieții sale, îl lăsăm pe însuși Mircea Mureșianu să ne relateze, preluând ceea ce a așternut sub formă de manuscris sub titlul *Anieșul – patria copilăriei mele*, în anul 2015:

*„Prima poartă spre lumea copilăriei a fost deschisă pe cerul destinului meu într-un loc paradisiac numit Anieș (oiconim și hidronim care, dincolo de sorgința lui legată de aur – din maghiarul «aranyos» – poartă în semantica intimă metafora frumuseții de excepție a locurilor și a oamenilor), spațiu ce-mi va rămâne definitiv în suflet ca singura și inconfundabila patrie a copilăriei mele.*

*Anieșul se confundă cu primii șase ani de școală, cu învățătoarele care m-au introdus în lumea slovelor și a socotelilor aritmetice, cu profesorii de atunci, cu chipurile senine ale colegilor și prietenilor mei, alături de bunătatea oamenilor și de armonia divină care domnea peste toate. Este cel mai frumos loc de pe fața Pământului, acesta emanând un parfum de paradis și îndemnând la preumblări prin ierburile fânațelor de sub munte, prin pădurile ozonate de molid, prin pajiștile brodate cu «pomnițe» și afinе, dar și cu bureții ce-și scot trupurile de sub frunzare.*

*Mă identific mereu cu Anieșul și, implicit, cu orizontul geografic măierean, prin «merindea» spirituală cu care acest loc Dumnezeiesc m-a pornit în viață. Acolo sufletul meu de copil a dobândit o stare de «labirint», cu subterane în care edificiul meu structural-genetic și-a insinuat propria sensibilitate acompaniată de o eternă sfială în fața tutelei (cum spune undeva Al. Cistelecan). Este locul care mi-a «blindat» spiritul cu fidelitate și statornicie față de lucrurile cu adevărat mari și importante în viață. Anieșul m-a învățat, prin poveștile date de părinții mei, să-i accept și să-i respect pe toți cei care gândesc altfel decât mine, cu convingerea că doar așa putem ține sub control «tensiunea arterială» crescută la care e predispusă lumea în care trăim.*

*Anieșul rămâne spațiul geografic de care mi-e dor chiar și atunci când îl cutreier și locul special în care am aflat pentru prima dată, de la mama mea, că întrebarea mistuitoare «Ce a fost mai întâi: oul sau găina?» nu are decât un singur răspuns, rațional și cumpătat: «la început a fost Cuvântul» și că, de fapt, Cuvântul din enunț este sinonim cu Dumnezeu, cu sensul de Spirit Suprem, atotstăpânitor și atotputernic, capabil să zămislească toate făpturile materiale.*

*Sunt anieșeano-măierean prin adopție și rămân un fiu loial unui orizont geografic și spiritual pe care-l voi purta cu mine și dincolo de lumea telurică în care ne ducem traiul. Mă închin mereu cu sacră pietate în fața a tot ceea ce a fost benefic, frumos și luminos în copilăria mea petrecută la Anieș. ”.*

Provenind dintr-o familie de dascăli, acesta a continuat tradiția, alegând la rândul său **cariera didactică**, cea care avea să-i aducă atâtea satisfacții.

Între 1975 și 1979 a urmat cursurile Facultății de Geografie din cadrul Universității „Babeș-Bolyai” Cluj-Napoca, devenind din 1979 profesor de geo-

grafie și obținând ulterior, pe rând, toate gradele didactice (Definitivatul – 1982, Gradul II – 1987, Gradul I – 1991), după care, în intervalul 1993 – 1998, și-a desăvârșit studiile doctorale la Facultatea de Geografie a Universității „Babeș-Bolyai” din Cluj-Napoca (cu teza de doctorat *Districtul Grăniceresc Năsăudean. Studiu de geografie istorică*, sub coordonarea prof. univ. dr. Grigor P. Pop). În perioada 1990 – 1999 a fost director coordonator al Școlii Generale din Rodna. Își continuă apoi activitatea de profesor de geografie până în 2004 (fiind, în același timp, cadru didactic asociat la Facultatea de Geografie, Extensia Bistrița, specializarea Geografia Turismului).

În anul 2004 renunță la învățământul preuniversitar, trecând ca titular, prin concurs, pe un post de conferențiar la Facultatea de Geografie, Extensia Bistrița. Aici, activitatea sa a cuprins cursuri la specializarea Geografia Turismului (Geografia generală a turismului; Geografia turismului în România; Turism urban; Turism rural; Geografia continentelor – Europa; Geografia continentelor extraeuropene; Prospectare turistică; Amenajare turistică; Negocierea în turism; Cultură și civilizație; Etnografie și toponimie) și la masterul interdisciplinar Turismul Sportiv și Agreementul din Perspectiva Ecodezvoltării (Ecogeografia turismului sportiv; Modele de amenajare turistică specifice turismului sportiv; Patrimoniul turistic al României; Geografia piețelor turismului sportiv). Această din urmă specializare, a cărei existență se datorează în mare parte prof. Mircea Mureșianu, este rodul colaborării cu Facultatea de Educație Fizică și Sport, Extensia Bistrița. În această perioadă publică numeroase articole de specialitate și de popularizare a științei, cărți și cursuri pentru studenți și participă la diverse conferințe în țară și străinătate, precum și la schimburi de experiență în cadrul programului Erasmus+.

În perioada 2004 – 2014 este coordonatorul liniei de studii nivel licență Geografia Turismului, iar din 2014 preia coordonarea liniei de studii masterale sus-amintite. În anul 2012 este ales director al Extensiei Bistrița (funcție în care este reales în 2016 și pe care o deține până în anul 2019), fiind apreciat de către colegi și personalul auxiliar al Extensiei drept o persoană extrem de implicată și atentă la nevoile comunității academice.

În tot acest timp, conf. univ. dr. Mircea Mureșianu a avut și o prolifică activitate de îndrumare a lucrărilor de licență și disertație ale studenților celor două specializări, fiind foarte apreciat în această calitate datorită erudiției sale, a atenției la detalii și, nu în ultimul rând, a modului de a relaționa cu studenții. A îndrumat, astfel, peste 300 de lucrări de licență și 70 de lucrări de disertație, acoperind practic toată gama de tematici din domeniul geografiei turismului, respectiv a turismului sportiv. La acestea se mai adaugă și numeroase lucrări de grad îndrumate, precum și participarea, ca președinte sau membru, în numeroase comisii de licență, disertație și doctorat.



Toate aceste merite i-au fost recunoscute profesorului Mircea Mureșianu prin acordarea în anii 2010 și 2011 de către Universitatea „Babeș-Bolyai” a premiului *Management Academic*, precum și prin desemnarea ca „profesorul lunii” la UBB în noiembrie 2016. Prezentăm mai jos motivația Departamentului de Geografie al Extensiilor – Bistrița pentru propunerea de „profesorul lunii”, care rezumă cât se poate de concludent activitatea sa:

*„Conf. univ. dr. Mircea-Leontin Mureșianu (n. 1955, Rodna) este cadru didactic al Facultății de Geografie, Departamentul de Geografie al Extensiilor, Bistrița, din anul 2004, după ce, în prealabil, a fost profesor asociat al Extensiei încă de la înființarea acesteia, iar din anul 2012 este și director al Extensiei Bistrița a UBB Cluj-Napoca.*

*Activitatea didactică și științifică la Extensia Bistrița este una de excepție. Dacă în plan educațional dl. conf. univ. dr. Mircea Mureșianu a excelat prin dăruirea și pasiunea pentru predarea disciplinelor geografice (fapt recunoscut de către colegi și studenți deopotrivă), în plan științific bogata listă a publicațiilor (cărți, articole, studii, recenzii etc.) și a participărilor la prestigioase manifestări științifice îl recomandă de la sine ca un veritabil exemplu.*

*Este o figură emblematică a învățământului geografic bistrițean, specializarea de Geografia Turismului de la Extensia Bistrița confundându-se practic cu personalitatea Domniei Sale. Generații întregi de absolvenți își amintesc cu drag de «Domnul Profesor», care le-a deschis orizonturile geografice și le-a insuflat dragostea pentru natură și turism.*

*Pentru toate acestea, colectivul Extensiei Bistrița a Departamentului de Geografie al Extensiilor îl propune pe conf. univ. dr. Mircea-Leontin Mureșianu pentru desemnarea ca «Profesorul Lunii» la UBB. ”.*

În **plan științific**, conf. univ. dr. Mircea Mureșianu și-a arătat, de asemenea, dragostea pentru orizontul geografic local și județean, fiind membru în comitetele de redacție ale revistelor *Studii și Cercetări*, *Geology-Geography*, editată de către complexul Muzeal Județean Bistrița-Năsăud, secția Științele Naturii, și *Cetea Rodnei*, pentru care a și recenzat numeroase lucrări în calitate de referent. Omul de știință Mircea Mureșianu a făcut parte, de asemenea, din Consiliul Științific al Parcului Național Munții Rodnei, contribuind decisiv la conturarea politicilor de dezvoltare a Parcului și făcându-l cunoscut prin numeroase lucrări publicate în reviste de specialitate sau prezentate la conferințe de geografie.

Dar probabil că cea mai vizibilă și durabilă contribuție a conf. univ. dr. Mircea Mureșianu este reprezentată de **activitatea științifică** a domniei sale, concretizată prin publicarea de articole, cărți, lucrări de conferință (ca unic, prim sau co-autor), care tratează cu predilecție spațiul rodnean și pe cel adiacent. Astfel, dintr-un total de 96 de articole, 77 vorbesc despre Rodna, Valea Someșului Superior sau Ținutul Grăniceresc Năsăudean; cinci din cele 11 cărți au

ca subiect sau tratează spațiul de la poalele Munților Rodnei; iar 12 lucrări publicate în volume de conferință (din 22) se încadrează, de asemenea, acestei categorii.

Pe tipuri de **publicații**, activitatea de cercetare a fost fructificată după cum urmează: 2 articole publicate în reviste indexate Web of Science / ISI (Institute for Scientific Information); 17 articole publicate în reviste indexate BDI (Baze de Date Internaționale); 77 de articole publicate în reviste neindexate BDI, recunoscute CNCSIS sau din alte categorii; 7 cărți publicate în edituri naționale recunoscute; 4 cărți publicate în alte edituri naționale; 1 capitol publicat în edituri naționale recunoscute; 7 articole în volume de conferințe științifice internaționale cotate Web of Science / ISI și societăți profesionale internaționale; 10 articole în volume de conferințe științifice internaționale cu editori, neindexate BDI; 5 lucrări în volume de conferințe științifice naționale.

În cele ce urmează, vom prezenta o **listă a lucrărilor publicate și a activității științifice și profesionale**, pentru a oferi o imagine mai concludentă asupra carierei geografice și a dragostei față de locurile natale ale conf. univ. dr. Mircea-Leontin Mureșianu:

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1. Membru al Societății de Geografie din România, filiala Alma Mater Napocensis (2013 – 2019)

**Gânduri postume**

La final, cei care i-au fost cei mai apropiați colaboratori, colegi și prieteni de la Facultatea de Geografie din cadrul Extensiei Universitare Bistrița a Universității „Babeș-Bolyai” Cluj-Napoca doresc să exprime un gând acum, la final de drum, despre ce a însemnat să-l cunoască pe omul, geograful și rodneanul Mircea-Leontin Mureșianu:

*Ne amintim cu drag de cel care ne-a fost coleg și prieten timp de atât de mulți ani. Imaginea caracterului distins al prietenului nostru nu se va pierde în umbrele timpului, ci va deveni mai puternică. (lect. univ. dr. Nicolae Baciu)*

*Când îmi amintesc de colegul Mircea Mureșianu, îmi zboară mereu gândul spre ceea ce înseamnă a fi prin excelență un profesor. Și-a urmat vocația până în ultima clipă, reușind să schimbe generații, transmitând informații și aptitudini ca nimeni altul. A fost un prieten, confident și sprijin pentru colegi și pentru studenți în aceeași măsură. A inspirat încredere, stabilitate și a conferit o ținută distinctă mediului academic din Bistrița. A lăsat o urmă de*

*neșters în noi toți, amintindu-ne că în viață trebuie urmate doar căile corecte. A fost un om cu multe gânduri, multe speranțe, multe planuri, pe care le-a urmat până în ultimul moment. (șef lucr. dr. Andras-Istvan Barta)*

*Pentru mine Mircea Mureșianu a fost Profesorul. Adesea întrebam colegii: «unde e Profesorul?», alteori întrebam secretara: «a fost pe aici Profesorul?», iar dacă studenții aveau vreo nedumerire organizatorică le spuneam: «vorbiți cu Profesorul!». Și acest supranume nu se referea la profesie sau la gradul didactic (era conferențiar, de fapt), ci la altceva, mult mai profund, mult mai important. Cu toții suntem apelați «Domn profesor!», dar câți vom fi considerați «Profesorul»? Mircea Mureșianu ajunsese deja în acel stadiu, la acea stare. (șef lucr. dr. Ioan Bica)*

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*Mircea Mureșianu s-a confundat practic cu istoria Extensiei Bistrița a UBB, și mai ales cu cea a specializării de Geografia Turismului. Personal, îmi vor rămâne mereu vii în memorie peregrinările – în teren și intelectuale – cu domnia sa, o călătorie care m-a modelat în moduri pe care încă le mai descopăr. (șef lucr. dr. Eduard Schuster)*





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la Extensia Universitară Bistrița a Universității „Babeș-Bolyai”,  
împreună cu colegii de la Facultatea de Geografie*

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# **GEOLOGY**



## ADDITIONAL DATA ON THE MAMMOTH FROM FÂNTÂNELE (BISTRIȚA-NĂȘĂUD COUNTY)

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**Abstract.** An isolated molar plate, possibly originating from an m3 documents the presence of a mammoth at Fântânele, in Bistrița-Năsăud County. In this manner, Fântânele is confirmed as a Pleistocene locality, where isolated large herbivore remains are naturally unearthed by erosion, being found usually reworked into actual alluvia. It is not clear whether in this locality we have to deal with concentration levels, or just scattered isolated remains. The features of this fossil are too scarce for an assignation at a species level. The enamel thickness as well as the already published lamellar frequencies could indicate either a steppe mammoth or a woolly mammoth keeping old, archaic characters. Fântânele is a locality with potential for new finds and, in this manner, future paleontological surveys in the area are justified. The cold Pleistocene episode(-s?) documented by the mammoths from this locality remain to be established by future discoveries.

**Key words:** Pleistocene, mammoth, north-east Transylvania, Bistrița-Năsăud County, Romania.

### Introduction

During the Quaternary, several repetitive climatic oscillations occurred as alternating colder and warmer intervals (Bowen, 2009). Changing environments were challenging both for the flora and the fauna, a fact that forced them either to adapt, or to survive in shelters. In the cold times, some herbivores reached larger sizes. There are lots of examples, such as the giant deer also called 'the Irish deer' *Megaloceros giganteus* (Blumenbach, 1799), several genera or species of rhinoceros (the largest one is by far *Elasmotherium* (Fischer, 1808), but other genera and species such as Merck's rhinoceros *Stephanorhinus kirchbergensis* (Jäger, 1839) or the woolly rhino *Coelodonta antiquitatis* (Bronn, 1831) reached imposing sizes as well) or the steppe bison *Bison priscus* (Bojanus, 1827). Obviously, the biggest ones were the mammoth representatives (*Mammuthus* Brookes, 1828).

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In the Plio-Pleistocene several mammoth species are noticed, beginning with the oldest European representative *Mammuthus rumanus* (Ștefănescu, 1924), followed on the same lineage by *M. meridionalis* (Nesti, 1825), *M. trogontherii* (Pohlig, 1885) and finally the woolly mammoth *M. primigenius* (Blumenbach, 1799) (Shoshani & Tassy, 1997; Lister & van Essen, 2003; Lister et al., 2005).

The Pleistocene large herbivores are a common presence across the entire Romanian territory, excluding only the Carpathian heights which during the glacial episodes were covered by glaciers (Urdea & Reuther, 2009; Urdea et al., 2011). In spite of the repetitive frozen environments, the Carpathians did not act as a physiographic barrier for these mammals, which were able to cross these mountains easily by following the numerous passes located on various rivers, as some discoveries indicate (e.g. the woolly rhinoceros remains found in the Apuseni Mountains, in the Crișul Repede river terrace at Bulz, or the Little Tibi pot-hole at Chișcău (Codrea, 2005, Codrea & Lázár, 1994)).

In such context, the actual territory of the Bistrița-Năsăud County (northern Transylvania, Romania) could not break this rule, some finds documenting mainly the presence of mammoth and woolly rhino in a few localities (Chintăuan & Sângeorzan, 1971; Chintăuan et al., 1976; Codrea, 2005). Although the number of such reported finds is rather low – even though it can be the result of the collecting bias – data about some discoveries do exist. As it happens with a large number of finds in our country, the weakest aspect of these refers to their poor stratigraphy. In some cases, the fossils are completely lacking accurate stratigraphic or taphonomic data, with a single mention that is referring to the name of a locality. Such materials go without real scientific interest and could be used rather as didactic targets.

This paper focusses on the discovery of a mammoth cheek tooth fragment found a few years ago in the village of Fântânele, Matei commune, located in the south-western area of Bistrița-Năsăud County. It was found in the recent alluvia of Valea Pleșului. This vertebrate locality is better known as a Miocene (early Sarmatian) one, based on a Middle Miocene dolphin remain unearthed by one of us (L.V.; more details in Codrea et al., 2019) but also as a Pleistocene, due to a fragment of mammoth cheek tooth reported by Chintăuan et al. (1976)). In this manner, the new discovery confirms Fântânele as a Pleistocene vertebrate locality (*Fig. 1*).

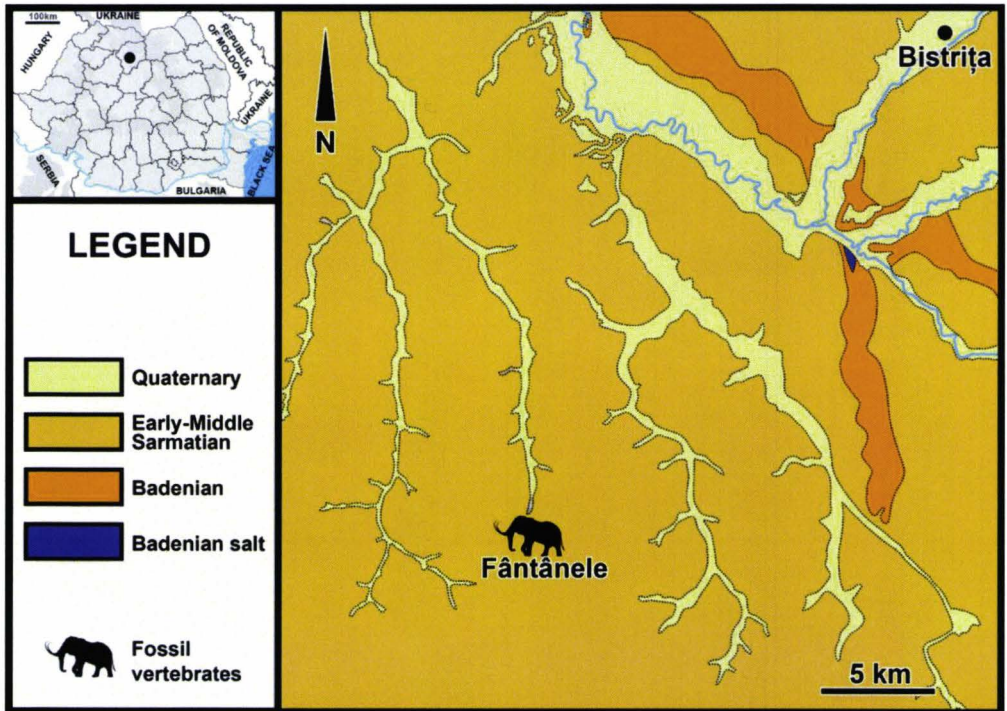


Fig. 1. Geological map of the Pleistocene vertebrate locality Fântânele area, in Bistrița-Năsăud County (after Codrea et al., 2019, modified)

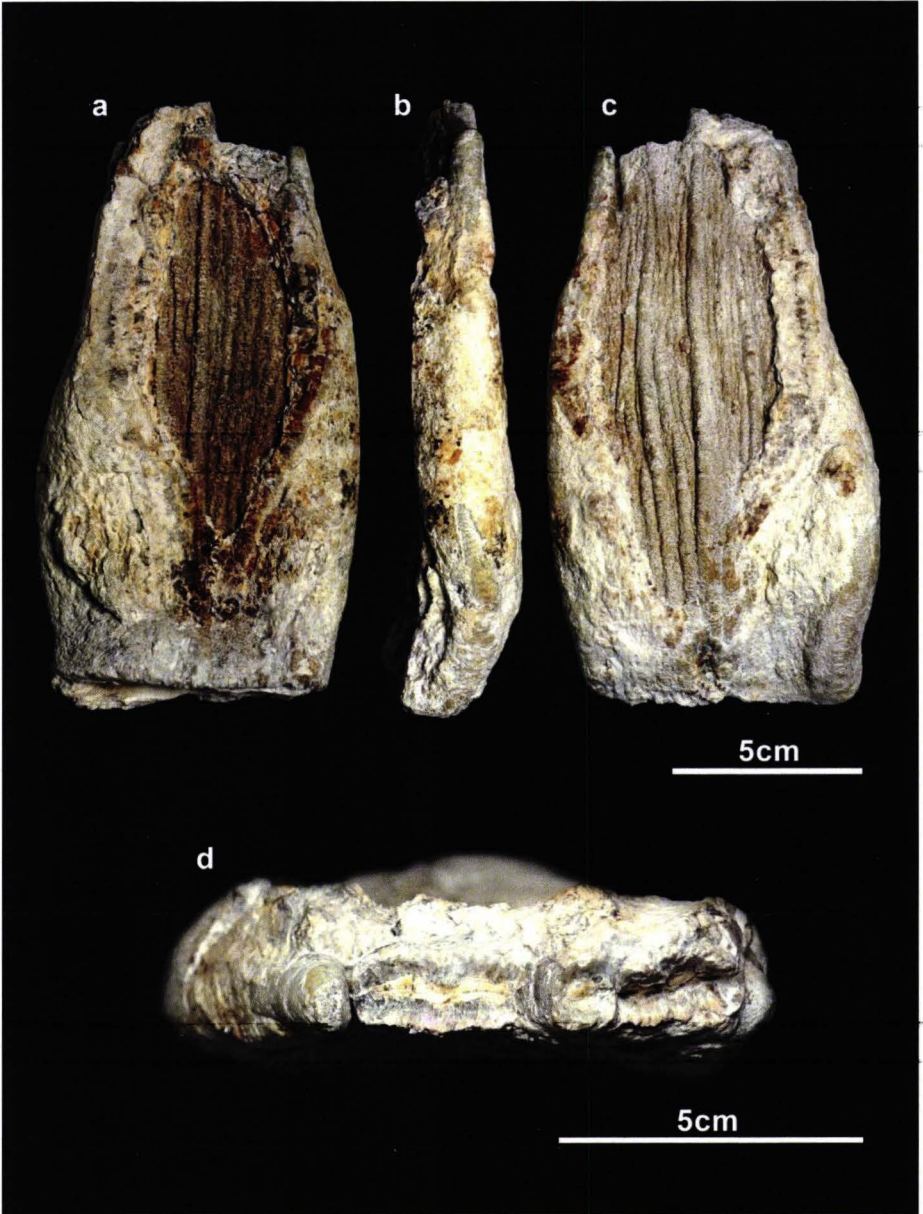
### Material and methods

The material refers to a single plate originating from a rear lower cheek tooth. It is stored in the collection of the "Grăniceresc Năsăudean" Museum of Năsăud (herein after, abbreviated as GNM), registration number 6558 (Fig. 2).

The methodology and dental terminology follows Beden (1979). The systematics follow Van Essen (2011).

### Systematic paleontology

Order Proboscidea (Illiger, 1811)  
 Family Elephantidae (Gray, 1821)  
 Subfamily Elephantinae (Gray, 1821)  
 Genus *Mammuthus* (Brookes, 1828)  
*Mammuthus* sp.



**Fig. 2.** *Mammuthus* sp., Pleistocene, Fântânele.

a. posterior view; b. lateral, inner view; c. anterior view; d. crown view.

### **Description**

The cheek tooth plate is nearly complete, but is damaged on the occlusal portion. In this manner, all apices of the enamel digitations are broken, except the lateral ones. The plate is broadening from the occlusal portion to the root, a feature indicative for its origin to be from a lower cheek tooth (Maschenko,

2002). Considering its size, it probably originated from an m3, possibly a left one, and it was located in the middle or distal portion of the tooth. One can estimate that this plate was either pristine, or the occlusal wear was incipient only, meaning that the tooth was either in the wear stage B2 or B3, *sensu* Beden (1979). Therefore, the plate originated from an adult, probably over 25 years old. The enamel is draped by a thick layer of cement. However, the central pillar can be distinctly observed, as well as the numerous digitations that are specific for the evolved mammoth representatives.

Measurements (mm) – maximum height of the plate (H): + 136.0mm; maximum width of the plate (l): 84.0mm; enamel thickness (ET): 2.7mm.

### Discussions

Compared to the entire territory of Romania, mammoths were rather seldom reported in Bistrița-Nășăud County. Surprisingly, there is no such locality mentioned in Apostol's (1968) list of the Pleistocene proboscidean localities of Romania. Just a few years later, Chintăuan & Singeorzan (1971) briefly described an M<sub>2</sub> assigned to *M. primigenius*, originating from the alluvia of Pleșului Valley (Valea Pleșului). The authors noticed a rather thick enamel (3-3.5 mm). The geological age of the originating deposit was estimated as Würm, "in one of its stadials". Later, Chintăuan et al. (1976) enlarged the list of woolly mammoth localities from this county. They noticed the presence of the woolly mammoth *M. primigenius* ("*Elephas primigenius*") in the following localities: Săsar, Uriu, Dipșa, Sângeorzu Nou and, for the first time, at Fântânele. They mentioned that the fossils from Fântânele originated from Pleșului Valley, from a "yellow mud" (of loess origin) that was assigned to "Pleistocene" (Würm). The fossils were collected from the valley source area (Ioan Chintăuan, personal communication to VAC). This time, the authors even tried to estimate the geological age to the "Würm<sub>1</sub>-Würm<sub>2</sub> inter-stadial (...) ca. 45.000 years ago", but their estimation is not supported by any hard evidence. In this latter paper, two cheek teeth fragments collected from the mentioned locality were described, and both were assigned to 'm2?'. The lamellar frequency (LF) was ca. 6 and ca. 7, and the enamel thickness in one case was 1.5, while in the other tooth it was 3. However, these data should be checked, because they could be less accurate. The data from these two papers were not resumed in the list of Elephantidae localities drafted by Vörös (1983), who mentioned only the finding of a tusk fragment of a woolly mammoth in Beclean, which has been recovered from the alluvia of the Someșul Mare Valley.

The characters preserved by the studied fragmentary fossil are very restricted. The ET has a relatively high value, which makes us consider that we have a representative of the steppe mammoth (*M. trogontherii*, 1889) rather than the woolly one (Vasile et al., 2012; Virag, 2013), even though we consider that other characters would be necessary for a clear species assignment, i.e. the LF. In



this regard we restrict this assignation just to the genus *Mammuthus*, as long as in addition we could not have access to the old mammoth finds from Fântânele.

Last but not least, we have to recall that in Romania, the quondam professor Sabba Ștefănescu from the University of Bucharest paid peculiar attention to the morphology of the mammoth cheek teeth, in a series of papers published in France. He made colligates of these papers which he offered to the main geological institutions, such as the universities of Cluj and Iași. Among these papers, one is of peculiar interest (Ștefănescu, 1913). He noticed that '*chaque tubercule de premier ordre se divise longitudinalement par rapport à la couronne, en deux tubercules de deuxième ordre, inégaux, l'externe plus gros que l'interne*' and '*Chaque tubercule de deuxième ordre se divise toujours longitudinalement par rapport à la longueur de la couronne, en deux tubercules de troisième ordre, égaux ou peu inégaux*'. Ștefănescu's observations are valuable and lots of them can be noticed on the newly discovered fossils from different Pleistocene localities from Romania.

### Conclusions

In Bistrița-Năsăud County, Fântânele is a Pleistocene locality where mammoth remains are not missing. Until now, the collected fossils were found isolated, being reworked into the alluvia of Pleșului Valley, from their source area. None originated from systematic diggings, but were found by local people. In these circumstances, it is rather unclear whether we have to deal with levels of large herbivore bones and teeth concentrations, or if these teeth are occurring in an isolated manner. The fossils already published in the past are poorly preserved and do not allow an assignation at a species level. The ET and the published LF are closer to *M. trogontherii* than to *M. primigenius*, but they should be noticed with precaution, since the sample is restricted and the methodology of study of the old finds is poorly defined. The presence of a steppe mammoth would be very interesting, as this species is not frequent at all in Romania, although we may also think about a woolly mammoth that has kept archaic, trogontheroid features. Briefly, the mammoth fossil samples from Fântânele should be increased by new finds that could solve the less clear details that are still persisting.

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**Rezumat.** O placă izolată, posibil provenind de la un m3, dovedește prezența mamutului la Fântânele, în județul Bistrița-Năsăud. De această manieră, Fântânele este confirmată drept localitate pleistocenă în care resturi izolate de erbivore mari sunt dezgropate natural de eroziune, fiind de obicei remaniate în aluviuni actuale. Nu este clar dacă în această localitate sunt în discuție nivele de concentrare a fosilelor, sau dacă

acestea apar doar izolate și risipite. Caracterile păstrate pe care această fosilă le oferă sunt mult prea sărace pentru stabilirea unei specii. Grosimea smalțului, la fel ca și frecvențele lamelare deja publicate de alți autori ar putea indica fie mamutul de stepă, fie un mamut lănos care păstra caractere vechi, arhaice. Fântânele este o localitate cu potențial pentru viitoare descoperiri, viitoare prospecțiuni paleontologice în zonă fiind justificate. Episodul (episoadele?) rece(-i) dovedit(-e) de mamuții din această localitate rămâne a fi stabilit(-e) de viitoare descoperiri.

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## THE COAL LIFE CYCLE: CASE STUDY OF THE LIGNITE FROM JILȚ (GORJ DISTRICT)

Ovidiu BARBU\*

**Abstract.** Life Cycle Assessment (LCA) is an evaluation process of the environmental risks associated to a product, and the waste discharged into the environment, including the transport stages induced by the existence of product. In this respect we are referring here to the case study of the lignite mined in the Jilț open pit in a period of time that we choose as illustrative for these mining works. The evaluation of the life cycle offers a systematic network that allows analysis of whole environmental impacts of a specific product (the lignite mined in the Jilț open pit) on its whole “life”. The target of this analysis is to identify and quantify all environmental impacts related to this product. This target can be reached following the trajectory ‘birth-death’ (i.e. from acquisition of raw materials until end-of-life). Although it is evident that the transition from the traditional coal mining methods to the sustainable coal will not be without costs, it could be a very important contribution for avoiding the dramatic climate changes.

**Key words:** coal, Life Cycle Assessment (LCA), Jilț, Romania.

### Introduction

For decades, the Pliocene lignite from Oltenia was an important resource for energy. It was of interest mainly for electricity, burn in thermoelectric plants in Rovinari or Turceni. About the geology of these coal bearing deposits of Oltenia, a lot of contributions can to be outlined. For instance, one can resume to some of them, issued at differences in time that allow building up a perception about the progress made on this topic: Petrescu et al. (1987), Codrea (1997), Codrea et al. (2006), Andreescu et al. (2011, 2013). In fact, the main progress concerns the reassessment of some formation once considered as Upper Pliocene (Romanian) to Lower Romanian (Dacian). Consequently, some of the boundaries between different geological ages in the local stratigraphy were relocated, based mainly on paleomagnetic studies.

In the last decade, the interest on the lignite of Oltenia dramatically decreased, due to the harmful environmental impact of the electricity production in the thermoelectric plants. The European Union (EU) policy discouraged this industrial trend and in future one may expect that the mining works in the area will cease completely.

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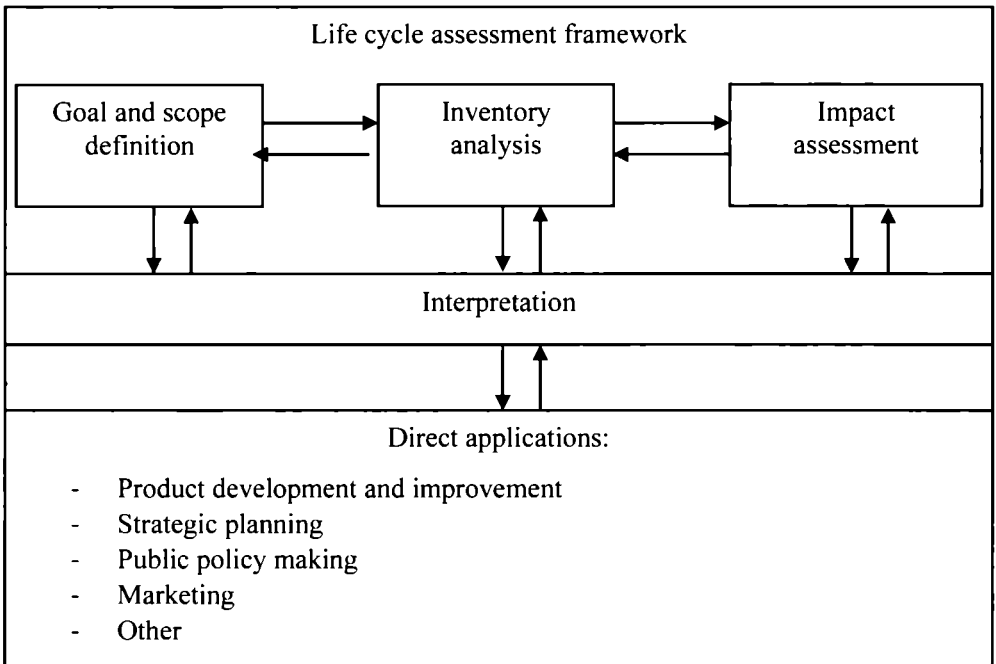
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In this respect we are referring here to the case study of the lignite mined in the Jiłț open pit in a period of time that we choose as illustrative for these mining works.

### History of the life cycle

Life Cycle Assessment (LCA) is an evaluation process of the environmental risks associated to a product, and the waste discharged into the environment, including the transport stages induced by the existence of product (SETAC, 1991). A product LCA's try to measure since "the beginning to the end" its impact on the ecosystem.

The basics of the LCA concept were coined in a couple of decades (1970-1990) with various tentatives and sharp different terminologies and results. The decade 1990-2000 was the decade of standardization. In this period, LCA went part of policies documents and legislation. The main accent focused on the packing, for example in EU (Directive 94/62/EC, OJ L 365, 1994) and since 1995 on the Japanese packing law (Hunkeler et al., 1998). A result of ISO refers to a standard series (1997/1998) reviewed on 2006 – ISO 14040 and ISO 14044 (Finkbeiner et al., 2006). Also it was defined a general methodological framework (ISO 14040; Fig. 1).



**Fig. 1.** The general methodological framework for ELCA

The time span 2000-2010 may be characterized as elaboration decade. In 2002, the United Nations Program for Environment (UNEP) and the Society of

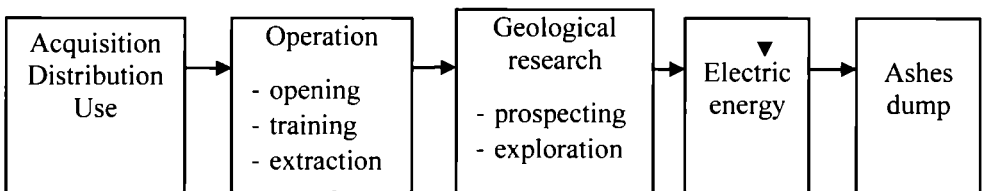
the Environmental Toxicology and of Chemistry (SETAC) launched an international partnership of life cycle, known as UN Environment Programme Life Cycle Initiative, 2010.

While the LCA demand increased, one can observe a divergence in the work methodologies. In spite of the new textbooks about LCA (Guinee, 2002; Baumann and Tillman, 2004; ILCD Handbook, 2010), it was still needed to continue to structure this domain with so many approaches. The EU Commission accepted this challenge and asked for a project in 2006 (Calcas, 2009), which should structure the so variable approaches of LCA and for defining the research lines as well as programs to promote LCA where needed.

The second decade of 21<sup>th</sup> may be named that the one targeting the analysis of the sustainability of the life cycle (LCSA). The LCSA framework is a future one for LCA. This is limiting the domain of the actual LCA from the numerous environmental impacts, to the covering of the three sustainability dimensions (people, Earth and prosperity). The elaboration of the LCSA framework is a major challenge for the scientific community and the international Governmental's structures, raising the need of a closer cooperation, if we want to avoid the occurrence of a very different series of approaches and methodologies.

### General data

The life cycle of the Jilț lignite (Fig. 2) includes the following stages of existence as economic product: geological research, survey, exploration, field and strata preparation, mining, its acquisition, distribution, utilization in the Turceni power plant in order to obtain electric energy for Romania's system, storage of the ash into the waste dump and withdraw of the lignite from markets at the end of its 'life' as primary energetic resource (exhaustion of reserves or replacement).



**Fig. 2.** Life cycle of the Jilț lignite

The general definition of the life cycle of the product is included in the standard SR EN ISO 14040 (2006) as following: life cycle represents 'consecutive and inter-correlate stages of a system-product, from acquisition of raw materials or generation of natural resources until post-use' In case this term is used as a marketing concept, the life cycle is 'market trended' and it refers to the trade life of the product (the life of the product on the market) and its trade life way.

### Evaluation of life cycle

The evaluation of the life cycle refers in the market economy a tool for recommendation of the sustainable and rewarding systems of production, useful for governmental, non-governmental and industrial decision-makers.

The actual status of the electric energy sector in Romania (RES 2011-2035) is not among the fortunate ones because in spite of the available diverse resources of mineral and fossil primary energy as: crude oil, natural gas, coal and uranium ore etc., all these ones are in rather small amounts (Table 1).

**Table 1.**

Situation of energetic primary resources in Romania (RES)										
Primary energy resources bearing	Reserves						Estimated yearly production	Estimated time of availability		
	Reserves		In concession, exploited		In new perimeters			Geological reserves	Exploited reserves, in concession <sup>2)</sup>	In new perimeters
	Mill. tons <sup>1)</sup>	Mill. tep	Mill. tons	Mill. tep	Mill. tons <sup>1)</sup>	Mill. tep	Years			
1	2	3	4	5	6	7	8	9=2/8	10=4/8	11=6/8
Coal										
Mineral coal	755	422	105	38,8			2,5	229		<sup>3)</sup>
<b>Lignite</b>	<b>1490</b>	<b>276</b>	<b>445</b>	<b>82,4</b>	<b>1045</b>	<b>133</b>	<b>3,0</b>	<b>47</b>	<b>15</b>	<b>30</b>
Crude oil	74	72					4,5	14		
Natural gas <sup>1)</sup>	185	159					10,5	15		
Nota:	1) Exclusively natural gas, in billion m <sup>3</sup> 2) Period of concession at least 2 years 3) Depending on the evolution of European Commission rules in domain									

As it can be noticed, among the primary resources of energy, the lignite is the one it has a longer estimated availability period, nearly half a century, at extraction of around 3.0 millions tones/ year. In addition to this, in this branch on intend to upgrade the gear for surface works, as consequence of rehabilitation of the technological lines from the open pit and dump, as well as consequence of upgrade of technologies and infrastructure.

It should also to be mentioned that in the open air mining of the lignite the State participation is nothing, the subventions being trended only for the underground mining, but these ones will be cut in time.

#### *Aim and domain*

Lignite could be a long-lasting available reserve for producing electric energy in Romania. It is the cheapest combustibile if one considers the price reported to the included energy, volume of reserves and available technologies, in comparison with other existing combustibles for the Romanian energetic.

However, one should consider that this combustible will have a rising dynamic compared to the past, due to the rising national and international demand. Even so, compared to the imported energetic coal, the autochthonous lignite mined in mining units' already profitable, of augmented productivity as it is the Jilț open pit, it will be twice or three times cheaper reported to the energy unit. In view of social and environmental necessities, the evaluation of the life cycle is essential component of the environmental management, guarantor of optimization of production processes in order to reach to products with minimal impact on environment and with maximum benefits.

Through life cycle analysis one identifies those product's peculiar aspects that are of significant impact on the environment. In this manner the producer has in the possibility to focus his efforts on those aspects that reduce/minimize the impacts of the product on the environment, in different stages of its life cycle, i.e. pre-production (acquisition of raw materials, manufacturing the components and their transport to the location of production, distribution, utilization, out of work. The structure of Romania's production of electric energy for the next quarter of century counts on lignite.

#### *Inventory analysis*

The inventory analysis concerns methodologies for collecting and calculation of data system-product, which will be included in the inventory, for the quantification of materials input or energy, or chemical substances, as well on the output of materials, energy, products, releases in air, water, soil relevant for the system-product. Briefly, the collection of inputs and outputs of a system-product on its whole life cycle is named inventory analyzes. The used data can originate from various sources, including direct measures, theoretical materials and energy balances, statistic data, information issued in publications. The materials and energy flows (inputs and outputs) as well as the releases into environment related to the system based on documented and justified procedures. The inventory of the life cycle is done with specific software programs (GaBi Software).

In order to increase the capacity of extraction of the coal and to cut the costs for fuel, through the inventory of the life cycle the working strategy of the Jilț mining sector was established as follows: upgrade of one track-type/caterpillar excavator ERC 1400,30/7 and related conveyor belts; modernization of two technologic lines inside the inner dump; automatization, monitoring, dispatch of the high capacity equipment; modernization of the coal deposits inside the open pits; construction of technologic roads and of access to the South and North Jilț quarries; green works of surfaces harmed by the mining works (forestation of ca. 135 ha and arrangements and re-fertilization of 36 ha); applying to shift the emplacement of Runcurelu locality; installing of high performance groups.



### *Impact evaluation*

It consists on the estimation of direct and indirect effects of the use of the energetic lignite as primary fuel, which brings harmful effects on human health and environment through emanations as results of combustion in electric thermal plants. For reducing this pressure, the production systems have to join the principle of sustainable development, i.e. to reach a more efficient process, to reduce the raw materials consumption and of the polluting emissions.

The evaluation of the environmental impact of the lignite means recognition of the contribution, amplitude and significance of the environmental potential impacts of this system-product, using results of analysis of life cycle inventory. In order to identify and evaluate the environmental impact of the lignite one follows the impact categories:

A. Categories of global impact: i. depletion of resources (source: use of lignite; effect: limitations of possibilities of the next generations); ii. greenhouse effect (source: burning of lignite; effect: rise of average global temperature, desertification etc.).

B. Categories of regional impact: i. ozone generation (source: mining and transport of lignite; effect: lung harming and others); ii. acid rain (source: mining, processing and transport of lignite; effect: deforestation, deterioration of lakes qualities as well as of buildings); iii. eutrofism (source: same; effect: harmful influences on biota); iv. remnant toxicity (source: same; effect: trough accumulation it reaches deterioration of ecosystems and related organisms).

The impact categories for lignite include the emissions in environment, natural resources consumption as well as the influences associated to development of mineral resources and fossil fuels etc.

The categories of indicators reflect the type of emissions, for each category of impact. One analyzes and estimates the magnitude of the potential impacts on human health, ecology, depletion of resources for each category of impact. The bulk of results of indicators illustrate the income of the system-product.

The evaluation of the environmental impact on the life cycle has as result the profile of environment (normalized profile and level-headed profile). This approach guaranty that the society obtains the most favorable product coast/coasts ratio and reduce the harmful effects on the environment and lead to sustainable development.

### *Interpretation*

The interpretation is the evaluation stage of the life cycle that combines the findings issued from inventory analysis and the environmental impact evaluation, in order to reach conclusions and recommendations. An analysis of the major contributions is done, as well as the ones concerning the sensibility and incertitude that can lead to conclusions about the target accomplishment and the LCA's aims. The findings of this interpretation can have to take the form of final recommendations about the domains where it has to act on priority to prevent the

bad ecological consequences and harmful effects on human health. In a typical way, this stage will generate decisions or actions plan.

As consequence, the work strategy of the Energetic Complex Oltenia (ECO) according the Government Program and EU environmental rules, in order to provide competition on the European market of energy, in terms of mitigation of the production costs and observance of requirements concerning the cut of the exhausts emissions (dust, NO<sub>x</sub>, Sox) and gas emissions with greenhouse effect (CO<sub>2</sub>) refer to: rehabilitation and modernization of electric power groups; adoption of the technology of storage of slag and ash following the dense fluid methodology; montage of the sulphur reducing installation in two distinct groups (3 and 6); decrease with 85% of CO<sub>2</sub> emissions issued from the burning gas from the energetic group no. 6 (capitation, transport, storage).

One can use the analysis of sensibility and incertitude. The sensibility analysis has as target to validate the reliability of the final results, through determination of influence of hypothesis variation, source data and methodology, and the analysis of incertitude follows to verify the influence of principal data incertitude on pattern results. For LCA studies of diagnostic, data used for identifying the critical segments of the life cycle, which uneven contribute to the total impact of the system against the environment. In the case of comparative LCA, the life cycles of the concurrent systems of same function are ordered based on the environmental performance; than the best alternative is choose.

### **Discussions**

The evaluation of the life cycle offers a systematic network that allows analysis of whole environmental impacts of a specific product (the lignite mined in the Jilt open pit) on its whole 'life'. The target of this analysis is to identify and quantify all environmental impacts related to this product. This target can be reached following the trajectory 'birth-death' (i.e. from acquisition of raw materials until end-of-life).

Jilt open pit is part of the ECO and includes two quarries, North and South Jilt. It furnishes yearly 13 millions of tones of lignite burn in the four groups of the Turceni Complex plant. The peculiar interest for this energetic resource is supported by the investment of 4.6 billions of RON, needed for the works carried out in North and South Jilt open pits, in 2011. The biggest investment, reaching 3 billions of RON was done for the opening and putting in operation of the North Jilt, for 4.5 millions of tons capacity yearly (2011). Overall, the Turceni Complex investment projects in 2011 exceeded 6.7 millions of RON.

The technologies related to sustainable fossil fuels, which are economic viable can serve to substantially reduce the carbon emissions. In same time, in profitable way, they support the energy supply, especially when prices of oil and gas will rise.

Although it is evident that the transition from the traditional coal mining methods to the sustainable coal will not be without costs, it could be a very important contribution for avoiding the dramatic climate changes.

The benefits resulted through the analysis from the perspective of the life cycle can be summarized as follows: i. financial ones that can be obtained through statistical analysis of the life cycle, revealing those stages able to offer possibilities of cost cuts; ii. new perspectives to re-design the product; iii. efficient management and marketing activities.

**Rezumat.** Evaluarea Ciclului de Viață (ECV= LCA) al unui produs încearcă să măsoare impactul acestuia asupra ecosistemului „de la început până la sfârșit”. Pornind de la aceste considerente vom încerca să facem, în continuare, o evaluare a ciclului de viață al lignitului din zăcămintul Jilț într-o perioadă pe care o considerăm semnificativă pentru activitatea minieră. Evaluarea Ciclului de Viață oferă un cadru sistematic, care permite analiza ansamblului impacturilor asupra mediului exercitate de către un produs (lignitul de Jilț) pe parcursul „vieții” sale. Scopul acestei analize este identificarea și cuantificarea tuturor impacturilor de mediu asociate acestui produs. Obiectivul propus se atinge prin urmărirea traiectoriei naștere-moarte (de la achiziția de materii prime până la scoaterea sa din uz). Deși este evident că tranziția de la metodele tradiționale de exploatare a cărbunelui la cărbunele durabil nu va fi lipsită de costuri, aceasta se poate dovedi o contribuție extrem de importantă la atenuarea schimbărilor climatice.

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# **GEOGRAPHY**



## ASPECTS CONCERNING OF SUSTAINABLE TOURISM IN ADAMCLISI RURAL AREA

Marius POPESCU\*

**Abstract.** Situated in South-Eastern part of Dobrogea, the Adamclisi rural area has a diverse natural and cultural heritage. It is a multicultural geographic region, full of nature and history. Geographical position and natural conditions of the environment are factors which determining variety of landscapes. Also, this region has a diverse natural heritage in the rural area. The aim of this paper is to identify the components of natural heritage as touristic resources, and opportunities of its valorization for rural tourism. A complex geographic analysis of the natural heritage and management of this, it can contribute to develop of sustainable tourism in rural area from Southern Dobrogea.

**Key words:** Adamclisi, culture, environment, rural, sustainability, tourism.

### Introduction

The rural area of Adamclisi is located in the South-East part of Romania, in the Oltina Tableland, as part of Southern Dobrogea Plateau. As part of a region with an agricultural profile, this area also has the presence of great natural and cultural resources (Albu et al., 2014). By associating specific agricultural activities with natural environment and cultural resources, a rural settlement of the Adamclisi administrative-territorial area could fulfill the criteria of a tourist village. The goal of this paper is to identify and evaluate the tourist resources of the Adamclisi rural area, as well as the opportunities to exploit them in order to sustainable development of the rural economy (McAreavey and McDonagh, 2011) in this region.

### Methodological aspects

Information about the tourism potential of the Adamclisi rural area were obtained through bibliographic documentation and field research for inventory and evaluation of resources with tourist potential, the existing infrastructure, tourist activities of leisure and cultural features, in order to identify some solutions for sustainable management (Ioan-Franc and Iștoc, 2007) of this rural area. The methodology proposed in this study is based on *the methodology regarding the evaluation of the tourism potential in the basic administrative-territorial units in Romania* (2016, *Metodologie privind evaluarea potențialului turistic în unitățile administrativ-teritoriale de bază*), *the European system of tourism indicators* (2016, ETIS toolkit for sustainable destination management), also other methods, to which I applied *the method of multicriteria analysis* (Bobancu, 2014).

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The evaluation of the tourist resources was realized by its own methodology, on the basis of 7 main criteria: *natural resources, cultural heritage, agricultural activities and local traditional products, general and specific infrastructure, transport potential, sights, crafts of the local community* (tab. 1).

The multicriteria analysis method was applied separately for each criterion. Thus, the indicators were compared with each other, and the weighting coefficient it was calculated. By multiplying it with a credit score granted for the evaluation of each indicator, a value was obtained, which by summing with the values of the other indicators, it determined the final result of evaluating a criterion. For each criterion, a weight was assigned (10-30%), which by summation it will result the absolute value of 100 (the ideal rural tourist model) (tab. 1).

The result of the evaluation of each criterion correlated with the weight assigned to it, and the sum of values of the 7 criteria will determine the real value of the evaluation of the rural tourism potential. Depending on the value obtained, an administrative-territorial unit will be classified on a rank (I-X) from the scale of the rural tourism potential with 5 categories (tab. 2).

**Tab. 1.** Criteria of the rural tourism potential

Criteria		Weight (%)
$C_1$	Natural geotourist resources	15
$C_2$	Ethnocultural heritage	15
$C_3$	Traditional food products of the local community	30
$C_4$	Anthropic sights and locations	10
$C_5$	Technical and material infrastructure	10
$C_6$	Communications and transport infrastructure	10
$C_7$	Traditional craft products of the local community	10
Total		100

*Source: own methodology*

**Tab. 2.** Scale of the evaluation of rural tourism potential

Rank I	Rank II	Rank III	Rank IV	Rank V	Rank VI	Rank VII	Rank VIII	Rank IX	Rank X
$\geq 90.00$	89.99-80.00	79.99-70.00	69.99-60.00	59.99-50.00	49.99-40.00	39.99-30.00	29.99-20.00	19.99-10.00	$< 10.00$
High		Medium-high		Medium		Medium-low		Low	

*Source: own methodology*

The evaluation of rural tourism potential for the administrative-territorial units of a region is a component that can be the basis for the elaboration of managerial solutions or models of socio-economic development at local or regional level (Popescu and Gruia, 2017).

Being located in a tableland area that offers great pedoclimatic conditions, the tourism valorisation of the natural, cultural and agricultural resources of the

Adamclisi area it will contribute to the revival of the local rural economy (Bordânc, 2008). Thus, there are opportunities to promote the rural settlement of Adamclisi, as a representative tourist village in Constanța county, or Dobrogea region.

## Research Results

### *The geographical analysis of the Adamclisi rural area*

With an area of 138 km<sup>2</sup>, the Adamclisi rural area is located in the South-Western part of Constanța county, and consists of 5 villages: Adamclisi, Zorile, Urluia, Abrud, Hațeg (Erdeli and Cucu, 2005). On the territory of this area, to 2 km from Adamclisi village it is the *Tropaeum Traiani* Monument, a building of Roman Art and a geographical landmark for the whole area (Ciorbea et al., 2018).

The relief has the appearance of a plateau, with altitudes between 155 m (East part) and 75 m (West part). The Adamclisi village is located at an average altitude of 118 m, occupying the interfluve detached from the *Monument Hill*, and its Northern and Eastern slopes, between the *Cetății* brook and the *Adamclisi* brook. The other villages are located along some valleys that cross them almost longitudinally, occupying their slopes and the interfluves of some secondary valleys: Abrud (47 m), Hațeg (32 m), Urluia (30 m), and Zorile (70 m). This rural area is a part of the temperate-continental climate region, and the typical vegetation is represented of steppe and forest-steppe (Iordan and Dobre, 2005).

The subsoil resources of the Adamclisi rural area are represented by diatomite, bentonite, limestone, shale gas. Thus, there are 2 open quarry, one at Adamclisi (*Urluia Hill*), and the other to West of Hațeg village. The energy potential is represented by a wind turbine (with a power of 200 kw), a 30 kw biogas station, also the project includes a wind farm with 129 turbines (Ciorbea et al., 2018).

The land use of Adamclisi rural area is represented by 76.8% agricultural areas, 18% forestry areas, 5.2% other areas. From agricultural area of about 10,600 ha, 75.9% is arable land, 21.6% pastures and hayfields, 2.5% wine-growing areas (2018). There are 3 units for storage and marketing of vegetable products.

Through the exploitation of hardwood trees of forests (*Quercus pubescens*, *Robinia pseudoacacia*, *Ulmus*, *Fraxinus* and *Carpinus betulus*), it provides wood as a resource for heating, less in construction. The meliferous resource (approx. 400 bee families) is represented by the spontaneous steppe flora, *Robinia pseudoacacia* and *Tilia Tree* forests, agricultural landscapes (with *Brassica*, *Helianthus* and *Medicago sativa*) (Popescu et al., 2017).

The relief morphology has the appearance of a low plateau, mostly flat with long slopes, valleys that sometimes widen, it allows for the most part to be worked for agriculture. Due to relief and soil, the agricultural land has favorable

conditions for the practice of a high-performance agriculture, of cereal type. The terraced slopes are cultivated with vines. The lands, rich in steppe grasses, generally located on the slopes, it provides food sources for animals (approx. 5,400 sheep, 2,500 goats) (2018, Anuarul Statistic al județului Constanța).

The vineyards were expanded by accessing Programs of European Funds for reconversion of some areas on the slopes, the wine potential being concentrated in 2 companies: *Vifrana* Vineyard (since 2006) and *Domeniile Adamclisi* Vineyard (since 2008). *Vifrana* Vineyard and *Frâncu* Winery (since 2010) has a storage capacity of 1,000 t of wine per year, from the harvest obtained from the vine area of 130 ha. The grapes are processed in own winery, also there is a bottling line of organic wine brands as *Patrician*, *Simposium*, *10 (zece)*, *Bob cu Bob*, in different kinds, depending on the grape variety (*Cabernet Sauvignon*, *Syrah*, *Fetească Neagră*, *Pinot Noir*, *Chardonnay*, *Sauvignon Blanc*). *Domeniile Adamclisi* Vineyard with a vine area of 126 ha, obtain a production that is processed and stored at the *Cernavodă* Winery, the own winery being under construction. It produces the wine brands as *Amfora* and *Adam*, from the varieties of grapes as *Cabernet Sauvignon*, *Merlot*, *Pinot Noir*.

In Adamclisi village is an unit for processing cow's, sheep's and goat's milk, which produces *Telemea* cheese (since 2006).

Economic activities give to this rural area an agricultural, viticultural and tourist profile (Ciorbea et al., 2018).

The road infrastructure is represented by the national road (DN3), Adamclisi village being located to 64 km from Constanța and to 68 km from Ostrov, to which is added local roads to Dobromir-Băneasa (DC27), to Zorile (DC31), or to Hațeg-Peștera (DC54).

The transport infrastructure is represented by 135 km of public roads (of which 45 km national and county roads, 90 km local roads). The national road DN3 Constanța-Murfatlar-Adamclisi-Ostrov passes through the villages of Adamclisi and Urluia, the distance to Constanța being 62 km. The nearest railway stations are Medgidia (44 km), and Cernavodă (54 km), the access to waterway being 70 km (Ostrov), and to the *Mihail Kogălniceanu* International Airport of Constanța (68 km).

Out of the total number of inhabitants (approx. 2,400), 91% are Romanians, 2.1% Turks, 6.9% did not declare their ethnic status (2018). More than 50% of the population lives in the Adamclisi village (Magiru, 2003). Of the total households, 98% are connected to the electricity network, 86% have water supply, and 45% benefit from sewerage (2018, Anuarul Statistic al județului Constanța). Almost all households benefit from a radio and TV subscription, cable network, and telephone network (fixed or mobile).

In this rural area is a high-school (with a gymnasium school and kindergartens), 4 Orthodox churches, and a monastery.

### ***The tourist resources of Adamclisi rural area***

The main sight from Adamclisi rural area is the *Tropaeum Traiani* historical-museum Complex, consisting of monument, fortress and museum, which are visited annually by about 10,000-12,000 tourists. The museum is situated in Adamclisi village, being organized as a lapidarium. It has original pieces of the *Triumphal Monument*, especially the trophy statue and the metopes, funerary slabs with Latin inscriptions, discovered in the Necropolis near the Roman City and other archaeological sites, especially ceramics, discovered in archaeological sites in the administrative area of *Tropaeum Traiani* municipality.

The fortress represents the ruins of the *Tropaeum Traiani* Roman municipality, brought to surface and preserved by archaeologists, being located on the right of national road (DN3), at the exit from Adamclisi village to Urluia village. In there can be admired the walls and defense towers, restored on the South side, the public buildings located on either side of the *Via Principalis* (central street) and the 6 paleo-Christian basilicas from the fortress.

The *Triumphal Monument* is located to 2 km from Adamclisi village, on the *Monument Hill*, it offering to tourists a panoramic view of the Adamclisi village, the fortress, and the surrounding landscapes. The access is possible on a road with 2 lanes to each direction, it detached from national road (DN3), at the entrance in the Adamclisi village, from Constanța. In the square of the middle of road, tourists can admire artistic creations realize during the *Art-Archeology* National Symposium of Fine Arts (Magiru, 2003).

The monument was rebuilt in 1977, at 100 years after the *Independence of Romania*, it renovated in 2015, through a project with European Funds, which together with the surrounding park offers to tourists an oasis of greenery, shade, and peace. At the entrance is a *Tourist Information Center*. Nearby is the altar and the mausoleum, not rebuilt, but from thereit was extracted archaeological material for exhibition in the museum (Ciorbea et al., 2018).

*Sf. Filip* Monastery (since 2002) is located to 1 km on the left side of national road (DN3), between Adamclisi village and Urluia village. It houses the relics of some martyrs, discovered near the fortress, placed in coffin deposited in a crypt in the basement of the church, with access from the outside, it is interesting for architecture and exterior painting, too.

Anually in August, it is organized the *Art-Archeology* National Symposium of Art Creation, for sculpture and picture. It is coordinated by the *Glycon Snake* Cultural Association from Constanța.

The sport activity of this rural area is represented by a sport association with football section, which it organizes an interregional tournament, *Tropaeum Traiani* Cup, since 2010. Also, since 2016, it is organized the *Dacia Pontica* Marathon, with some competitions as: marathon (42 km), half marathon (21 km), test (10 km), popular race (2 km), children's relay (2 km), and race for preschool (500 m).

The monuments from rural area of Adamclisi are represented of *Tropaeum Traiani* Monument, *Tropaeum Traiani* Fortress (former Roman City), and the *Eroilor* Monument, consecrated on *Ascension Day* (since 1921).

The *Tropaeum Traiani* historical museum complex, consisting of the *Triumphal Monument*, the museum in the civic center of Adamclisi village and the fortress, partially restored, is a resource of national importance for *cultural tourism* (Nicoară, 2006).

*Sf. Filip* Monastery is important for the *ecumenical circuit* that includes *Sf. Serafim de Sarov* (Crângu village), *Sf. Andrei* Cave (Ion Corvin village), *Arh. Mihail și Gavril* (Strunga village), *Sf. Ioan Botezătorul* (Lipnița village), *Derwent* (Ostrov village).

*Frâncu* Winery offers wine and culinary tasting opportunities, located to the *wine road* that includes the vineyards of *Murfatlar*, *Viișoara*, *Adamclisi*, *Aliman*, *Rasova*, *Ostrov*. This diversity offers the possibility to practice several types of tourism (of family, organized, or group), tourism with direct target to Adamclisi village. Also, the Adamclisi village being included in a circuit tourism, to Adamclisi-Ostrov *wine road*, with branch to Cernavodă, along Danube (it can be included, the *religious tourism*, *enotourism*, or *culinary tourism*).

Other opportunity for this rural area is *bike tourism*, because of the geographical position in the proximity of the Danube Valley, the daily transit of European cyclists who practice this type of *sport tourism* (from April to November).

The tourism is dependent of summer seasonality. It is a stationary or short-term tourism (between few hours to a day) (Ionașcu, 2011), extending in recent years by attracting tourists.

The tourist infrastructure offers services as: *Tropaeum Traiani* restaurant (30 indoor seats, and 40 terrace seats), closer to *Tropaeum Traiani* Museum, *Tropaeum Traiani* guest house (4\*, 23 rooms, restaurant, conference hall, outdoor pool), located on the road leading to *Tropaeum Traiani* Monument.

The criteria for evaluating of the tourism potential from the Adamclisi rural area have the following features:

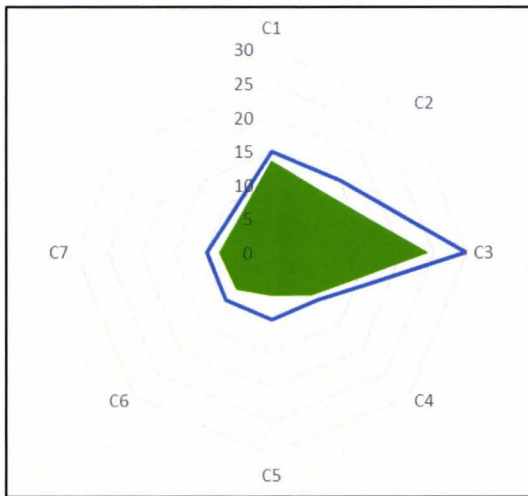
-by summing the scores of the 7 criteria, table 3 shows the result a total of 285.94points;

-in figure 1 is represented a heptavalent graphic model, compared to the rural tourism ideal model.

-according to its own methodology for evaluation of the rural tourism potential, with a weight of 80.3%, the Adamclisi rural area is included in first category (rank II), with high rural tourism potential.

**Tab. 3.** The evaluation of tourism potential of Adamclisi rural area

Criteria	$C_1$	$C_2$	$C_3$	$C_4$	$C_5$	$C_6$	$C_7$	Total
Value	47.18	42.10	37.00	46.42	32.64	39.91	40.69	<b>285.94</b>
Weight (%)	13.5	12.1	24.0	8.8	6.3	7.6	8.0	<b>80.3</b>



Source: ownfigure

Fig. 1. Adamclisi rural area – a model of rural tourism development

### Conclusions

The Adamclisi rural area has agricultural resources, natural and cultural tourist resources that can highlight the local tourism potential.

A priority goal of the local authorities for the future development of the rural economy in this area, it must be an integrated strategy of optimum use of the local heritage, correlated of regional level.

The Adamclisi village offers optimum conditions for capitalizing on local and agricultural tourism resources, but it can be a model of rural tourism development in Constanța county.

The efficient management of agricultural resources, natural and cultural resources integrated in a tourist trail or tourism offer (*scientific, cultural, religious, culinary or polyvalent tourism*) can be a solution for the sustainable socio-economic development of the Adamclisi rural area.

**Rezumat.** Arealul rural Adamclisi este situat într-o regiune cu potențial agricol ridicat, din podișul Dobrogei de Sud, însă dispune și de resurse ce-i scot în evidență profilul turistic. Obiectivul acestei lucrări este de a identifica și evalua resursele turistice din arealul rural Adamclisi, precum și oportunitățile de valorificare a acestora în scopul dezvoltării sustenabile a economiei locale din regiune. Evaluarea resurselor turistice s-a realizat pe baza a 7 criterii principale: *resurse naturale, patrimoniul etnocultural, activitățile agricole și produse alimentare tradiționale ale comunității locale, infrastructură generală și specifică, potențialul de comunicație și transport, obiective turistice antropice, produse artisanale tradiționale ale comunității locale*. Arealul rural Adamclisi oferă condiții optime de valorificare a resurselor agricole și turistice locale și poate constitui un model de dezvoltare a turismului rural în cadrul județului Constanța. Un obiectiv prioritar ale autorităților locale în vederea dezvoltării viitoare a economiei rurale trebuie să fie reprezentat de o strategie integrată de valorificare optimă a patrimoniului local,

corelată la nivel regional. Un management eficient al resurselor agricole, al resurselor naturale și culturale integrate într-un traseu sau circuit turistic, ofertă turistică (determinate de diversitatea formelor de turism – *ecumenic, culinar, viticol, cultural-istoric, științific, sportiv sau polivalent*) poate fi soluția pentru o dezvoltare socio-economică sustenabilă a arealului rural Adamclisi.

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# THE SALT DEPOSITS FROM THE SECAȘELOR PLATEAU AND THEIR VALORISATION IN THE SALONTI TOURIST FACILITY FROM DRAȘOV, ALBA COUNTY

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**Abstract.** One of the main features of the Transylvanian Depression's rim is the occurrence of salt deposits, either as rock salt or as dissolved salt in springs. That is also the case in the south-western corner of the region, in the Secașelor Plateau, where salt springs are present at its outer edges, toward the river valleys south and west of it. Some of these springs have a long history of local usage for household and, later, therapy or leisure purposes, such as in the village of Doștat, where a new local leisure facility with an open-air, saltwater swimming pool was established in an area with long-known salt springs. The Salonti Tourist Resort, established in 2012, takes advantage of the local resources, as it struggles to be a competitor to the Băile Miercurea salt-water spa.

**Key words:** Secașelor Plateau, salt deposits, local usage, tourism.

## The Secașelor Plateau

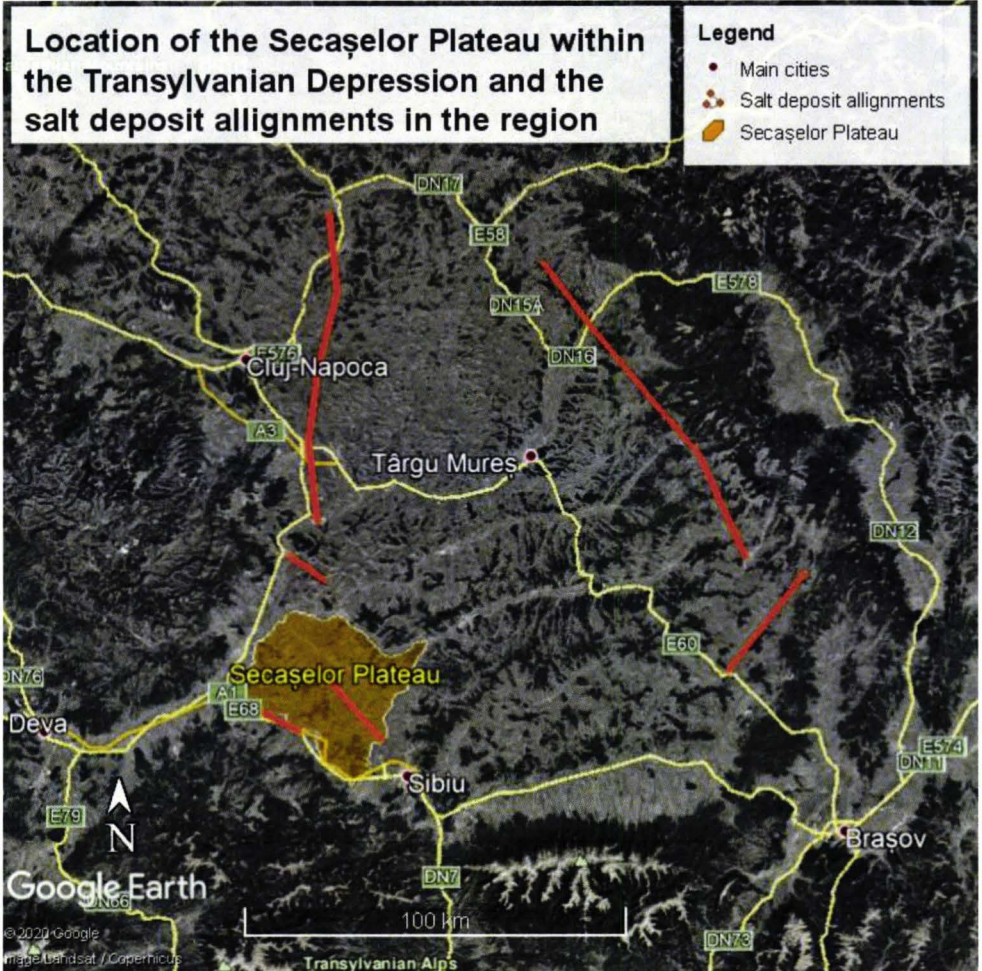
The Secașelor Plateau is located in the south-western part of the Târnavelor Plateau in southern Transylvania and is its smallest subdivision. It is bordered by the Târnava Mare and Târnava rivers to the north, the Mureș River to the west, the Apold and Săliște depressions to the south, and the Sibiu Depression and the Visa Valley to the east. It is composed of several ridges with heights ranging from 350 m to 620 m (Roșian, 2020, p. 43) and appears lifted by 50 – 60 m (south, east, west) to up to 200 m (north) towards the surrounding areas. It is a mainly agricultural region, but the central, mainly NW-SE oriented ridge and the north-eastern corner of the plateau are keeping forests on their highest parts. The main river of the plateau is the Secașul Mic River, running SE-NW and draining the central part of the region before flowing in the Târnava River. There are no towns within the Secașelor Plateau, but some villages (Șpring – pop. approx. 750, Roșia de Secaș ≈ 780 inhabitants) may assume a small role as local centres, while most of the social and economic flows are highly centrifugal and oriented towards the bordering towns (Alba Iulia, Blaj, Ocna Sibiului, Miercurea Sibiului, Sebeș). Infrastructure is modest due to a low penetration potential, with ten county roads (DJ, *drum județean*) within the plateau (141C, 141D, 106B, 106G, 106I, 106K, 106L, 107, 107B, 142J), among which nine are secondary county roads.

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However, the bordering areas have a very high communication potential, with two main railway lines (200, 300) and two secondary ones (200A, 208), four national roads (DN1/E81, DN7/E68, DN14, DN14B) and two highways (A1, A10), and the Sibiu International Airport just outside the south-eastern corner of the plateau.



**Fig. 1.** The Secaşelor Plateau lies in the south-western corner of the Transylvanian Depression in central Romania and holds two salt deposit alignments (the Păuca – Ocna Sibiului line and the Sebeş – Miercurea Sibiului area) with various forms of surface occurrences (data: Roşian, 2020; map layer: Google Earth satellite imagery)

### Salt in the Secaşelor Plateau and its utilisation

There are two main regions in the Transylvanian Depression where salt reaches the surface: on its eastern and western borders, towards the Eastern Carpathians and the Apuseni Mts., respectively. These two alignments are generally continuous in the northern and central parts (fig. 1), but brake up in

their southern third while also changing orientation. The situation is more complex on the western alignment. The northern half stretches along a line connecting Ocna Dejului, Sic, Cojocna, Turda and Ocna Mureș, and has a north – south general orientation. The southern part consists of three separate lines, oriented NW-SE (Aiud – Ocnișoara, Păuca – Ocna Sibiului, and Sebeș – Miercurea Sibiului) (Roșian, 2020, p. 232). The latter two of these lines are located in the Secașelor Plateau, with the Păuca – Ocna Sibiului Line in the east-central region, and the Sebeș – Miercurea Line at the south-western border (fig. 1).

There are many place names indicating the existence of salt in the region, especially on its western and southern borders, but not all of them have been documented at the same time, as can be seen on various historical maps (different editions of Austrian topographic maps from the 18<sup>th</sup> and 19<sup>th</sup> centuries, Romanian topographic maps 1:20.000 from the inter-war period until the 1960s, and Romanian topographic maps 1:100.000, 1996 edition. Most of them indicate salt in its dissolved state, either as salt rivulets or as brine springs (in Romanian, „slatină” means brine, „sărăt/ă” – salty, „sărătură” – salty terrain, „ocnă” – salt mine / pit). Examples of such occurrences are (fig. 2): Pârâul Slatina (Brine Creek, tributary of the Secașului Mare River, NE of Sebeș); La Sărătură (At the Saltland, south of Crăciunelu de Jos, Alba County); Valea Sărăriei and Dl. Zlatina (Salt / Brine Valley, and Brine Hill, south of Mihalț, Alba County); Pădurea Ocnei, Dl. Ocnei (Salt Pit Forest, Salt Pit Hill, south of Topârcea); the village Șeușa („Sospatak” in Hungarian, meaning Salt Creek, ESE of Alba Iulia); Pârâul Sărăt (Salty Creek, right tributary of the Secașul Mare River at Cunța – Drașov). Another place name related to salt is Salz-Niederlag (Salt Port, literally „salt unload point”) south of Alba Iulia, where salt from the Turda salt mine was unloaded from special rafts.

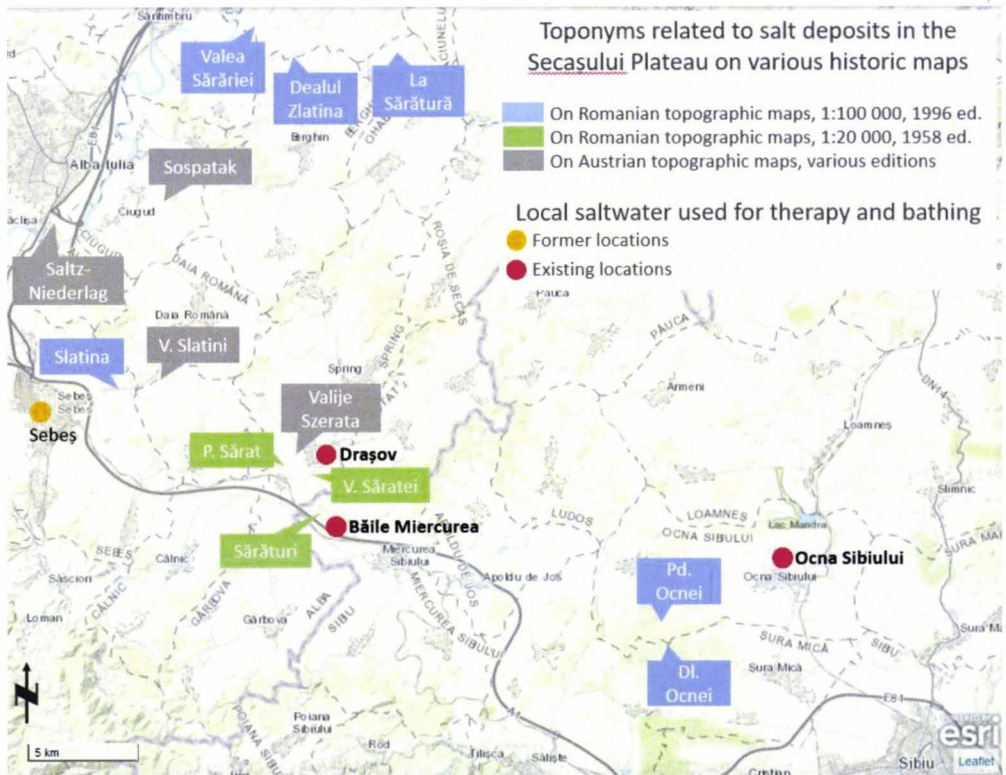
### *Salt utilisation*

Salt was from earliest times one of the most valuable commodities due to the importance of sodium in human nutrition and food preservation (Harding, 2014, p. 591). Therefore, salt deposits attracted human communities, and salt extraction and trading were a major wealth generator for those communities and, later, the political entities controlling the extraction sites and transport routes.

Other occurrences of salt at the surface, such as brine springs, have been used by surrounding communities early on for domestic purposes rather than economic ones, since these salty waters did not have a very high economic value otherwise (Chiricescu, 2006, p. 159).

The salt (halite) deposits in Transylvania were of major interest for the medieval Hungarian Kingdom, as the central part of it had no salt (Harding, 2014, p. 591). Salt extracted from the Transylvanian mines was transported on special rafts down the Mureș and Someș rivers to the Tisza, and its transport and

price were strictly regulated by the Hungarian kings, such as Andrew II in 1222 and 1223, respectively (Marc, 2006, p. 153).



**Fig. 2.** All the place names on various topographical maps indicating the occurrence of salt are located at the outer, western and southern edges of the Secaşel Plateau, and indicate, in most cases, dissolved salt (map background: esri)

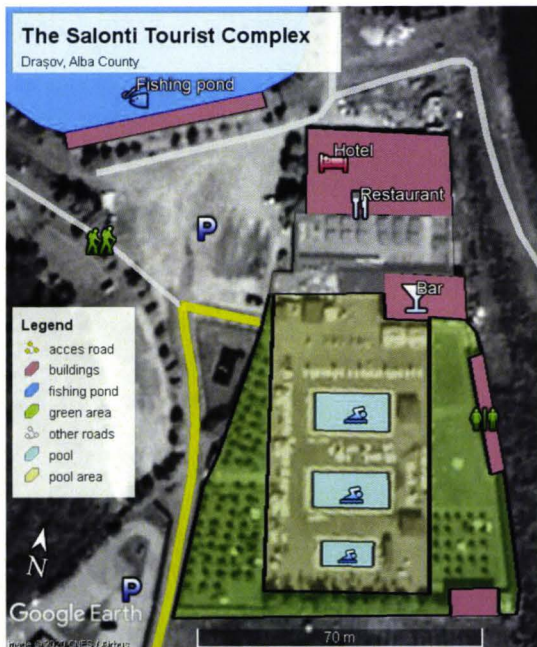
### *Spa utilisation*

In the area south of the Secaşel Plateau, archaeological findings revealed the probable use of salt water for bathing since Roman times, with *thermae* discovered at Miercurea-Albele (Străuţiu, 2011, p. 14); this is so far the only evidence of spa use before modern times in the region. Centuries later, in 1864, the first bathing facilities are constructed at Ocna Sibiului, and in 1906-1909, the current spa was erected, comprising a central pavilion and the spa facilities (Săgeată, 2011, p. 171). This was soon followed by the establishment of the spa near Miercurea Sibiului, in 1890, under the management of the evangelical church (Străuţiu, 2011, p. 98), and the salt bath from Sebeş together with a sanatorium in 1910, that used water brought from a salt spring on the road to Daia (Wagner, 2014, p. 571). Among these three bathing and treatment facilities, only Ocna Sibiului and Băile Miercurea still function today, while the one in Sebeş had been closed in the 1990s (fig. 2). Then, roughly a century later, a

private investor opens a new recreational facility with two saltwater pools in Drașov, a village a few kilometres north of the old Băile Miercurea spa.

### The *Salonti* tourist facility from Drașov

Drașov (population: 573, alt. 284 m) is located in the eastern part of Alba County in central Romania, at the border with Sibiu County, at 33 km from Alba Iulia and 43 km from Sibiu (fig. 2). The village, first mentioned in the year 1309, was part of the old Spring/Zekesch (later Mühlbach / Unterwald) Church District (Rother et Wollmann, 2011, p. 343) in the Lower Alba County of the Hungarian Kingdom, where Romanians and Saxons shared the lands (although the Saxon villages in the Secașelor Plateau were never part of the Saxon Seats, thus not enjoying their freedoms and privileges within the Hungarian Kingdom and, later, the Principality of Transylvania). To the north of the village, there existed a castle at the end of the 19<sup>th</sup> and the beginning of the 20<sup>th</sup> century (as can be seen on the Third Military Survey of the Habsburg Empire map, 1:25.000, where it is identified with the abbreviation „Schl.”, from the German *Schloß*– castle, or on the Romanian Topographic Maps 1.20.000, sheet 3060 (1958 ed.), where it is shown as „castelul Teluchi” (probably Teleki). Unfortunately, nowadays there is no trace of the building, and there is also no other noteworthy tourist attraction in the village, so that tourism was not present there until the erection of the *Salonti* complex.



**Fig. 3.** Site plan of the Salonti Tourist Complex from Drașov, Alba County. The recreational facility utilises the local salt water in two of the swimming pools

The tourist facility was built east of the village of Draşov in Alba County, near the confluence of the Boz and Şpring rivulets, at the base of a small hillock (307,5 m) in a mainly swampy area, where several ponds were created in the communist period. Access is possible by car from the county road DJ1061 (Berghin – Cunţa) that runs through the village (0,6 km), which connects the facility with the national roads DN1/DN7 at Cunţa (3,8 km) and the A1 motorway (3,4 km). Also in Cunţa, 2,4 km away, there is a regional rail station, and the nearest airport is at Sibiu (Sibiu International Airport), at 41 km (fig. 4).

Construction started in the year 2009 with the help of two EU-funded projects of approximately 1,7 million Lei each, of which half were irredeemable funds. Both projects have been implemented through the National Programme for Rural Development, with one of them aiming the construction of the recreational facility (pools, changing booths, restrooms, gazebos, sidewalks, mini-football field), while the other was intended for the construction of the pension. The restaurant was built with private money (*shorturl.at/yBR14*).

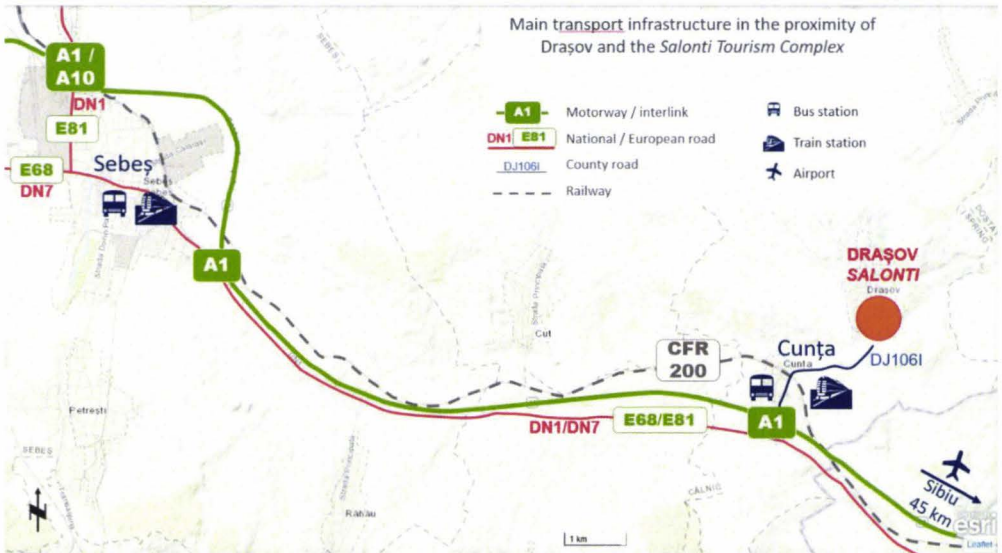
After its completion, it comprised a three-pool lido (consisting of a freshwater pool of 20x10 m and 1,80 m deep; a saltwater pool of the same dimension; a smaller saltwater pool for children, measuring 14x7 m and having a depth of between 0,80 and 1,20 m; and 600 sun loungers; changing booths; a pool bar; gazebos; the saltwater of the pools has a concentration of 12545 mg/l, or 1,25%, thus being a brackish water), a restaurant, and accommodation (32 beds in 16 rooms (double and twin) (fig. 3).

A few years after the opening of the facility, in 29 March 2014, a fire destroyed the gazebos, the changing booths, the pool bar and 70% of the restaurant. As it has been revealed several days later, the facility had no insurance (hence the dismissal of an intentionally set fire), apparently because the owners ceased to cover the insurance after the project's completion, either willingly or negligently (*shorturl.at/nBCE9*). The damage was swiftly mended, and the resort reopened in the summer of the same year.

The resort is operated by the Salonti Tour SRL limited company, and had a net revenue in 2019 of nearly 25000 \$ (or around 22000 €), as revealed on the Dun & Bradstreet Business Directory (*shorturl.at/gpNOW*). This is five times less compared to the nearby Băile Miercurea resort, with a revenue of over 144000 \$ (same source), which can be a consequence of its location.

### **Regional importance and development prospects**

As shown above, the location of the *Salonti* resort some kilometres away from the main transport routes, near a village with no significant tourist attraction or important economy besides small-scale agriculture, is one probable cause of its modest economic performance. However, the same location can be turned into an advantage, by simply better advertising the resort in the proximity of the adjacent junctions, especially on the roads (DN1/7, A1).



**Fig. 4.** Drașov lies in close proximity to one of Romania’s main transport corridors, with nearby road, railway, and air transportation connections, thus holding a high communication potential (map background: esri)

Another factor of its development is its size and offer. Even if it was planned as a local recreational facility, the potential of the natural resource upon which it relies can be further exploited by adding a saltwater treatment component to the resort. At the same time, it should expand its leisure offer to accommodate a more diversified demand, using the potential of the nearby water bodies and the hillock bordering the premises. Thus, it can become a regional attraction, rather than a local, week-end leisure spot, complementing the other two resorts in the southern Secașelor Plateau – Ocna Sibiului and Băile Miercurea.

**Rezumat.** Podișul Secașelor cuprinde pe teritoriul său partea sudică a aliniamentului de cute diapire care apar la suprafață pe latura de vest a Depresiunii Colinare a Transilvaniei, un aliniament deranjat de la direcția generală nord-sud și cuprinzând două sectoare orientate NV-SE. Cel sudic, care urmărește limita Podișului Secașelor înspre Culoarul Apoldului, se manifestă la suprafață în general prin prezența apelor sărate (izvoare, sărături), după cum atestă o serie de toponime (Slatina / Valea Slatini, Pârâul Sărat, Valea Săratei, Sărături). Aceste ape au fost utilizate local inițial în scop domestic, în alimentația oamenilor și animalelor, iar mai apoi și în scop terapeutic sau de agrement prin câteva băi de interes local sau regional (Băile Sărute de la Sebeș, Băile Miercurea – ambele edificate la cumpăna secolelor 19 și 20, și, mai nou, Complexul Turistic Salonti, de lângă satul Drașov din județul Alba). Complexul, construit în perioada 2009 – 2012 din fonduri europene, se află în apropierea unor sărături cunoscute de multă vreme în zonă. Acesta cuprinde trei piscine (dintre care două cu apă sărată), o

pișune, un restaurant și un ponton de pescuit. Chiar dacă se află la doar câțiva kilometri de o importantă axă de transport (calea ferată 200, drumurile naționale DN1/DN7, autostrada A1), locația suferă de pe urma efectului de marginalitate, deoarece influența coridorului de transport se atenuează rapid spre interiorul podișului. Totuși, proximitatea amintită deține un potențial ridicat de comunicație, astfel încât, printr-o promovare adecvată și prin extinderea ofertei turistice actuale (care ar putea include o bază de tratament și amenajări de agrement care să utilizeze resursele naturale ale zonei), stațiunea să se transforme dintr-un centru local de agrement de sfârșit de săptămână într-o stațiune de interes supralocal, care ar putea contribui la dezvoltarea zonei și ar complementa oferta balneară din sudul Podișului Secașelor.

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# EXPLOITING THE TOURIST POTENTIAL OF BISTRIȚA-NĂSĂUD COUNTY THROUGH A GREAT PROJECT: *VIA TRANSILVANICA*, A DREAM COME TRUE

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**Abstract.** This study aims to highlight the fact that, among the various possibilities for promoting tourism in general and in Bistrița-Năsăud County, in particular, in addition to the methods already successfully addressed so far, we can use some innovative methods and, to the same extent, particularly efficient and viable, including the successful implementation of a major project to create a tourist and pilgrimage route for lovers of hiking, nature and sports, which can be crossed on foot, by bicycle or on horseback. In the elaboration of this article I applied as a research method the case study, which allowed me to inventory and evaluate the already completed sections of this project of the Tășuleasa Social Association, with everything related to the infrastructure necessary to cover the route in good conditions. Throughout the investigations and the documents studied, I found that in carrying out this great project, which will cover almost 1000 km of road and will cross 10 counties, several volunteers took part, who have already marked a great part of this route with specific identification elements, made of durable materials, which allow the good orientation of the traveler along the way. The case study shows that this monumental project, whose cornerstone coincides with the Centenary of the Great Union, is actually intended to be a kind of "open-air museum" that will create a bridge in time between the past, present and future.

**Key words:** Centenary, project, promotion, volunteers, hiking, nature.

## 1. The premises of this great project entitled *Via Transilvanica*

Starting from the desire to achieve small things to enjoy every day, Alin Uhlmann Ușeriu, returned from Germany to the Bârgăului Mountains, to Piatra Fântânele, his grandparents' village, and started a social "enterprise", according to the western model. In 2000, when they looked for a name for this organization, they decided to give it the name of the mountain that protects them, namely Tășuleasa. Having worked for some time with the volunteers of the Die Johanner humanitarian order in Bavaria, Alin Ușeriu learned from them how civil society mobilizes in cases of floods, landslides or other natural disasters. With the lesson well learned there and the desire to see the same civic culture developed in his native places, Alin Ușeriu returned to Piatra Fântânele and founded a non-governmental organization that promotes the ideas of volunteering and civic attitude.

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The first to understand what is happening and what needs to be done were the young people, high school students and students who want to become volunteers at Tășuleasa Social and who came with hundreds, thousands, attracted by the actions and projects of the foundation (<https://www.viatransilvanica.com>). From this permanent need to involve the community of which it is part, the Tășuleasa Social Association found as a solution the application of another successful project, Via Maria Theresia, a simple path that, properly arranged, brings thousands of people and has already become the destination a very popular mountain marathon, through which the area became very well known and had a lot to gain, by the simple presence of man in nature, in the most sustainable way possible, ie to be hiker, tourist, educated, not to bring harm the facilities created or the natural environment itself. The project to extend this road was a wish borne in mind for five years by the president of the Association, who managed to cover part of the Camino de Santiago route, because in the family from which it comes a lot goes, runs much, long distances. El Camino in Spain is one of the most popular routes in Europe that people walk. It is 500 km long and more and more Romanians are embarking on this adventure so that, at the end of the trip, they can rediscover the pleasure of simple things. And he's not the only one of his kind in the world. Thus, Alin Ușeriu, the initiator of the project, went from France to Portugal and could not stop in Santiago. He walked 1.500 kilometers and so the idea came to him to try to create such a path in his hometown, which would be so famous that people from all over the world would come (<http://www.viatransilvanica.com>).

On the 100<sup>th</sup> anniversary of the unification of Transylvania with Romania, the people of Tășuleasa considered it their duty to carry out a project that would promote the identity of Transylvania as part of Romania, out of the desire to make stronger the connections between the deep roots of our history and what we want to build for the future, so that whole generations from now on know more about our origins, about the wonderful country we live in and about what Romania has to offer: nature, traditions and customs still preserved and unique. It is a big and beautiful project according to the beauty of the places it crosses. Because the roads have always united people and places, because they give meaning and give a unique experience, in the Centenary year, the Tășuleasa Social Association launched in this context in Alba Iulia, on June 12, 2018, the Via Transilvanica (Calea Transilvaniei) project. This organization turns 20 this year, during which time its initiators have always tried to fill the social space between people, hence the name, Tășuleasa Social. This symbolic road will be 950 km long, will connect Transylvania with the Danube (Apollodorus' Bridge in Damascus) and Bucovina (Putna Monastery). It can be traveled on foot or by bike, or with friends, it will start from Drobeta-Turnu Severin – where King Carol I first entered the country, it will cross Transylvania with all its multicultural riches and it will reach Putna where Stephen the Great is resting. Via Transilvanica was conceived as a unifying road. For the Tășuleasa Social

Association, the most important values are volunteering, organizational culture, respect for nature, educating young people through practical examples and developing civic courage among young people through their involvement in social and environmental issues ", this is how this non-governmental organization from Romania presents itself.

The president of the Tășuleasa Social Association has coordinated many projects in the last 20 years, since the association was established. He built a campus at the foot of Mount Tășuleasa where, with the help of volunteers, he leads actions to afforest deforested areas. Volunteers believe that Tășuleasa Social is the country they would like to live in (<http://www.viatransilvanica.com>).

## **2. The chosen route, the actual work and the collaboration with the local authorities and the various partners**

Transylvania's identity is given by its unique natural-geographical setting, its millennial history, its cultural and ethnic diversity and its connections with the other regions of Romania.

After a working meeting with representatives of the 10 counties through which Via Transilvanica crosses, various non-governmental organizations and personalities who support this project, the launch event took place in the Citadel Square in Alba Iulia.

*Via Transilvanica* wants to promote the nature, history and multiculturalism of Transylvania. This road of approximately 1000 km in length will cross Romania from north to south, through its heart, will connect Transylvania with the Danube (Apollodorus' Bridge from Damascus) and Bucovina (Putna Monastery) and will pass through seven historical regions and the following counties: Suceava, Bistrița-Nășăud, Mureș, Harghita, Brașov, Sibiu, Alba, Hunedoara, Caraș-Severin, Mehedinți (<http://www.viatransilvanica.com>).



**Fig. 1.** Route *Via Transilvanica* or *Camino de Romania*

(Source: <https://calatoriaperfecta.ro/via-transilvanica/>)

<https://biblioteca-digitala.ro> / <https://complexulmuzealbn.ro/>

The route is already approved by the Ministry of Tourism and intense work is being done on signs, routes and in general on the logistics necessary for this extensive achievement. A terminal can be purchased on the [viatransilvanica.com](http://viatransilvanica.com) website and thus anyone can contribute to this project. Such a terminal is expensive, 1000 euros, but the terminals are designed to last 100 years and the name of the sponsor will appear inscribed on the stone and in the route map.

The zero kilometer terminal was installed at the Putna monastery. In Bucovina, the route has a length of 137 kilometers, and the costs for development amounted to almost 140.000 euros. In total, almost 300 kilometers have been put into use since last year. It costs almost a thousand euros every kilometer of the "Road that unites us", and the money comes from sponsorships (Fig. 2).

The *Via Transilvanica* project is supported by approximately 5000 donors and has so far raised over 600.000 euros. The people from Tășuleasa Social aim to arrange 700 kilometers by the end of the current year and estimate the completion of the works during the years 2021-2022, depending on the circumstances (<http://transilvaniareporter.ro>).

Theoretically, the straight line between Putna and the Danube (at Drobeta-Turnu Severin) measures less than 600 kilometers. The project of those from Tășuleasa is to restore a route detached from the historical maps of the region traveled. "We do not want it to be the shortest way, but to offer the complete experience," said the project coordinator. The total value of the project is estimated at 1 million euros, about 1000 euros for each kilometer arranged. This is where the involvement of people in the community comes in; the terminals are delivered to them, and the mayor with their help, with those involved, will proceed to install these terminals, so that everything goes as quickly as possible. It is hoped that this road will really mean the Transylvanian road, to be a road that in 100 years will already have a history and be in the patrimony of humanity (<http://www.zilesinopti.ro>).

Arriving in each community, these initiators of the project told people that for a while they would be volunteers at *Via Transilvanica*. Every section must have parents to take care of it, every community must have people who offer hospitality in the true sense of the word. The volunteers from Tășuleasa are this family, Mircea Micălea, former Minister of Education, helped in the design of this project, along with other people who were actively involved, namely Marcel Iureș, Andreea Esca, Tibi Ușeriu, Toma Cocone, Dragoș Bucurenci, Prince Nicolae and his wife also participate in the marking of the road (<https://nicolaealromaniei.ro/en/via-transilvanica/>).



**Fig. 2.** Via Transilvanica – The road that unites **Fig. 3.** Andesite bollards  
 (Source: [www.facebook.com/ViaTransilvanica/photos](http://www.facebook.com/ViaTransilvanica/photos))

The landmarks are andesite bollards that remain one meter off the road. There were over 25 students, artists, master students, even very famous artists who made such a milestone. It is actually the most expensive thing right now. Not only their handling, not only their shower, not only their installation is a very complicated thing, but to cut in andesite a stone that is a monobloc without cracks, is not an easy thing. Then they are brought to Tășuleasa, then they are sandblasted and sculpted, and will be mounted every kilometer. Artists who sculpted them participated, teams of boys and girls were formed who traveled the road so that a guide could be written, dozens of IT specialists from Cluj were involved who mobilized, individually, but also their companies and made the project site (<https://calatoriaperfecta.ro/via-transilvanica>).



a

b

**Fig. 4 (a,b)** Markings on *Via Transilvanica*  
 (Source: [www.facebook.com/ViaTransilvanica/photos](http://www.facebook.com/ViaTransilvanica/photos))

This great project has attracted many sponsors, over 600.000 euros have been raised from donations, since June 12, 2018 since the project was launched. By the end of 2019, 400 kilometers have been completed, and by 2020 the initiators of the project aim to reach 700 kilometers (<http://www.viatransilvanica.com>).

After the completion of the project, its popularization will begin, by participating in various international tourism fairs.

The road that unites, a real open-air museum is a project that starts from a length of about 1000 km, but that can be continued. It is possible to promote rural

localities and little known places, which could become extraordinarily interesting as accommodation spaces and through the exceptional natural environment it offers. We have an aging population, which can no longer cope with start-up projects, but which can offer the hospitality we have been talking about and which we must somehow demonstrate. No one should ever change for this project, we should not even make a new road, but we need bridges, paths, which do not necessarily go on national and county roads (<http://www.viatransilvanica.com>).

The motto of the project is: "Be part of this project, be a partner in this project". With this way of saying things, surprisingly, more than 30.000 euros were obtained in a very short time. Over a thousand donors gathered with an average donation of over 200 lei, which is very rare in Romania. And we have people who donated a whole kilometer, which we practically converted into the value of a thousand euros. There were companies that did whole kilometers, there are strategic partners who really wanted to have 300 kilometers in that project, such as Raiffeisen Bank. For those from Tășuleasa Social, as an organization, this project is the biggest organizational challenge they have gone through (<http://www.zilesinopti.ro>).

Regarding the international impact of the project and its promotion in the European space, it should be specified that one week after the launch of the project, the World Tourism Organization contacted the initiators of the project, through a Romanian diplomat working there, stating that no they never expected a project of global relevance to appear in Romania from a non-governmental organization, which was an honorable thing. When the site was launched, there was a major international impact: in a record time it was visited by more than half of the world's countries, ie it came very clearly a positive response from the diaspora that never before he was not necessarily interested in the association's previous projects, but began donating from all over the world. This is because, finally, they acknowledged that this time it is a valuable project with which we as a community can somehow identify.

### **3. Bistrița-Năsăud, one of the counties covered by *Via Transilvanica* and exploiting on its tourist potential**

*Via Transilvanica* is divided into seven historical and cultural regions: Bucovina, Ținutul de Sus, Terra Sicularum, Terra Saxonum, Valea Mureșului, Terra Daco-Romana and Valea Cernei. The route is also divided into the ten counties it crosses: Suceava, Bistrița Năsăud, Mureș, Harghita, Brașov, Alba, Sibiu, Hunedoara, Mehedinți and Caraș Severin.

The hiker can choose to walk, bike or ride a region, a county, or set up a route of a few days. Of course, the choice to cover the entire route is not excluded.

Leaving Poiana Stampei, you also leave the Bucovina region. We then go to Lunca Ilvei, which is already in Bistrița-Năsăud County, at the foot of the

Rodna Mountains. The Upper Land region is the longest of the seven regions, with a length of 142 km. Via Transilvanica passes through the mountains here and shows us that the harshness of the place has taught people to adapt to nature and the times. Traversing a diverse landscape, from mountainous areas to lowland forests, from smooth hills to vast fields, this stretch awaits to be discovered its natural beauties and tourist attractions, while the culture, which for hundreds of years has developed through -a significant ethnic diversity, gives it a special aura.

The first route traveled in Bistrița-Năsăud County is the Poiana Negri-Lunca Ilvei Route. The landscape encountered on the way starts with many meadows, then rich in forests, the route passes by the Larion Tinov, with the possibility of visiting, after a short detour from the road, it passes by the railway (built during the Habsburg period) and by another natural reservation, the entrance to the locality being on a straight, paved road, in the shade of another dense spruce forest (Ghidul drumețului pe Via Transilvanica, 2018).

Larion Tinov is a site of community importance that maintains in a favorable state of conservation wildlife and spontaneous flora. The protected area covers an area of 3.023 hectares and includes the Crovul de la Larion nature reserve (250 hectares). Coniferous forests, deciduous forests, transitional forests, rivers, swamps, peat bogs, meadows and pastures, are home to species of trees, plants and animals representative of the geographical area: from spruce, fir or pine, to beech, fluffy birch or trembling poplar, wild animals such as the brown bear, wolf, deer, capercaillie and many other birds. The establishment of the protected natural area regime of the site was made in 2007. You can then admire the Rodna Mountains, with the maximum height in the Pietrosul peak, 2.303 m, and Lunca Ilvei is at the foot of the three peaks, namely: Ineu, Ineuț and Roșu (Naum et Moldovan, 1987).

The second route is the Lunca Ilvei-Tășuleasa Social Route (Piatra Fântânele). From the tops of Gălan's meadows, when the weather is beautiful, you can admire around the whole chain of Rodna mountains, Suhardul, Oușorul, 12 Apostoli, the whole chain of Călimani and Heniu mountains, landscapes of stunning beauty. The route passes by Tășuleasa Social, the "parents" of the *Via Transilvanica* project. You can admire here the Iron Cross Monument, built in 2018 by the Tășuleasa Social Association after the model of the Cruz de Ferro monument on the Camino de Santiago in Spain. This monument was built in honor of the hikers on *Via Transilvanica*. They can leave a stone at the base of the monument, a symbolic gesture of giving up hardships and sins. With a height of 17 meters, the monument is visible from a distance, motivating the hiker to go further.

Castel Dracula Hotel is the first accommodation unit in Romania dedicated to the famous Count Dracula, located in Tihuța Pass, the place where the vampire

house is positioned in Bram Stoker's novel. The atmosphere of some foggy mornings in this area, reminds us of the source of inspiration for all the bloody stories about the vampire that has become a symbol of Transylvania. Inside the hotel is Dracula's "grave", which can be visited. Then follow the famous Roman road, a road with historical value, almost intact, you can see some interesting stone slabs, reminiscent of long gone times. It is located in the Bârgăului Mountains, very close to the Tihuța Pass and has a controversial origin. Some historians say that this road was built by the Romans in 260 in the desire to expand the empire to the north, to today's Bucovina. Others say that it has a more recent history, from the times of the Austro-Hungarian domination, being in fact a border road, then used as a trade road. It seems that this road was extended at the command of Maria Theresa in 1760. At the initiative of the Bistrița-Năsăud Museum Complex and the Tășuleasa Social Association, archaeological excavations began on this road, hoping that one day the mystery will be solved, which envelops it (Bâca, 2012).

The third route is the Tășuleasa Social-Bistrița Bârgăului Route. Up to Valea Strâjii, from Tășuleasa, there are amazing views, with typical households of Bârgaielor and shepherds enticing with urda and curd. We then reach the Colibița Dam, which created the Colibița Lake by accumulation, around which an impressive leisure area has developed (Ghidul drumețului pe Via Transilvanica, 2018).

Another attraction along this route is the Maria Theresia Road, a historic road in the Călimani Mountains, built hundreds of years ago to support the military border troops of the Austro-Hungarian Empire, with weapons and food. It is a road that today connects the counties of Bistrița - Năsăud and Suceava (on the mountain), but few know that before, it connected Transylvania with Bucovina. To the value of the historical monument of the road is added the value of the natural setting of the Călimani mountains. Tășuleasa Social redesigned in 2014, a part of this road, signaling it appropriately for hikers all year round and moreover, for a mountain competition that it organizes every summer. The route is 42 km long and takes you on the trail of history, but also reveals the beauty of the landscape, contributing to our fight against excessive deforestation.

The fourth route is the Bistrița Bârgăului-Petriș Route. From Bistrița Bârgăului, you go along the Blidăreasa river, uphill, on an asphalt road and then on a paved road, among the houses of the locals, until you come out of their shadow in a few clearings where there are landscapes detached from a picturesque past. A few dilapidated huts rest in the middle of the pastures, the extent of which you cannot see, the road going up the hill, towards the dense and cool forest, a lot of forest with smooth ascents and descents.

On the way there is the Dealu 'Negru Chalet (Ceașescu's Chalet), built in a very short time in the '80s, at the request of Nicolae Ceaușescu, who had heard that the area was famous in Europe for the very high concentration of brown bears. One of the reasons that attracted these animals is the presence of fruit trees,

apples and pears, planted during the Saxon times in Romania. There are three heliports near the cottage, the largest of which was used by Ceaușescu when he came hunting, and the other two belonged to the Securitate. Today the area is used for the same purpose, namely hunting, including by foreign hunters, and is appreciated for the way it is arranged.

The Wooden Church in Petriș, another tourist attraction on the route, is a historical monument and was most probably built in 1748 and is dedicated to the "Holy Prophet Elijah". The church was donated to the village of Petriș in 1900 by the inhabitants of Ilva Mare. Until that moment, the villagers from Petriș did not have a church (Ghidul drumețului pe Via Transilvanica, 2018).

The bell tower of the Evangelical Church can also be admired by hikers. The Gothic church dates from the 15th century; the bell tower is raised to approx. 20 m southeast of the church, between 1820 and 1822. Many Saxons lived in the village until the German evacuation to Austria in September 1944, and most returned in 1945, when their expropriation followed, forced labor in concentration camps, theft of civil rights (until 1950), communist oppression. However, they rebuilt a strong German community. After 1970, they emigrated mainly to Germany. The evangelical church was sold to the Orthodox community, and was renovated with financial support from the Saxons in Germany.

A Saxon custom found here is the so-called "House Beam" related to the architecture of houses, which can be seen in many villages in Transylvania, was that above the entrance to raise a beam inscribed with the year and family who built the house. Moreover, the messages that can be seen even today, include religious references, thanks to those who helped build the house, quotes or exhortations (Ghidul drumețului pe Via Transilvanica, 2018).

The fifth route is the Petriș-Jeica Route. Leaving Petriș and passing through Orheiul Bistriței, then at the foot of the hill called Măgura, the road crosses a landscape of lowland villages followed by straight fields, covered with cereal fields, corn, or oak forests (Pădurea de Șes) planted by Saxons for to keep the animals in the shade. From the top of Măgura we have visibility over the villages in the area. Motley Tulip, also called "Chess Flower", motley tulip is a very rare plant, which unfortunately entered the list of endangered species. In our country, the motley tulip is mainly found in Bistrița - Năsăud County, in Orheiul Bistriței, in Pădurea de Șes, an area protected by law. It also grows in areas of Gorj, Timiș and Maramureș counties, where the humidity is high. It blooms in all its splendor in April. There is also a festival dedicated to this flower, the Laleaua Pestiță Festival. After the disappearance of the tulips, in May, the community here organizes every year a country celebration that gathers people of all ages, who come to rejoice, listen to folk music and enjoy nature.



The sixth route is the Jeica-Monor Route. On this route the landscapes are of a rare wildness, which lead through dense forests and hills that can rise over 1.000 m, with peaks that surprise with a surrounding visibility. Teleki Castle in Posmuş is a tourist attraction on the route. In the middle of the 18th century, instead of today's mansion, there were several dilapidated wooden buildings. Teleki Pál and Haller Borbála rebuilt the Baroque building. Teleki Pál and Haller Borbála were the ones who ordered the creation of the rectangular shape of the castle: on the sides were the warehouses, the stable and the prison, in the back the main building rebuilt between 1750 and 1752, and in front was the gate bastion built around 1760. The gate bastion, a building with a chapel, was later used as a guest house. During the revolution of 1848-1849, the mansion was destroyed, Teleki Ferenc moving to his domain in Şomcuta Mare. After 1945, the property of the Teleki family was subject to nationalization, used as a State Agricultural Enterprise, as apartments. The mansion was surrounded by vast expanses of forest and a park. The new "owners" have mostly cut down the forest, but several secular trees remain on the field, there is also an oak that is more than 600 years old. A nursery has been set up behind the mansion. Apart from the building used as a house, the mansion is a ruin today. However, funds were received for its reconditioning (Ghidul drumetului pe Via Transilvanica, 2018).

The next stop is worth making in the village of Monor, where in 1991 a modern milk processing factory, Carmolact, was established. It processes daily about one hundred thousand liters of milk purchased from private producers in the commune and neighboring communes in Bistriţa-Năsăud and Mureş counties. Tourist attractions of interest would be the Muddy Volcanoes of Monor – protected area, the Monuments of the heroes of Monor from the First and Second World War, the Monument of the revolutionary from Monor from 1848, the Memorial Museum of the writer "Teodor Tanco", the Orthodox Church of Monor.

The last route that this route takes in Bistriţa-Năsăud County is the Monor-Brâncovenesti Route. The landscape in the area is mixed between the rural landscape, lowland forests, clearings and hills used for grazing, slightly paved in Monor, but it will not be an extremely annoying factor. From here, the countdown to the boundary between Bistriţa-Năsăud and Mureş counties can begin. The route climbs gently to some hills, descends again into several valleys, passes by cow herds and a sheepfold until it reaches a small forest, interrupted by a clearing through which the route takes a left. From here on, you can see a 250-year-old oak tree, which keeps shade for grazing animals and passes for another kilometer, to the last stop in the county (Ghidul drumetului pe Via Transilvanica, 2018).

#### **4. The hiking guide, an integral part of the great adventure**

This guide is prepared with care and with great love by those who were the first to travel this route and lived on their own skin which means *Via*

*Transilvanica*. It contains the most important needs and I have the steps that must be followed for a trip on this route to be made safe and to be a positive experience. In this guide you will find information about the route, markings, accommodation and food, geographical areas, places or objectives of tourist interest and much more.

*Via Transilvanica* is constantly changing because new roads may appear, the guesthouses or hostels mentioned in the guide may close and at the same time new ones may appear, so if during the trip someone notices differences, he is invited to write on the pages Tășuleasa Social and/or *Via Transilvanica*.

At the beginning of each route, you can read a short description of a historic area, of the seven, as they were shared by the project team (Ghidul drumețului pe *Via Transilvanica*, 2018).

In the chapter *Accommodation and Infrastructure* you can find information about accommodation possibilities and about the road. The icons used will help to find the information you are looking for as soon as possible.

Mention of accommodations is in the order in which they appear on the route. Information about the possibility of accommodation includes the price-quality ratio, depending on the facilities provided to travelers (washing machine, kitchen, etc.), possible price changes for the current year, addresses and contact details. It is good to know that in addition to pensions and hotels, they will also offer accommodation to families in villages or towns, which is important to remember, especially in rural areas where tourism is not so developed.

The road is marked by: andesite kilometer marker, orange and white arrow, *Via Transilvanica* logo, signs at intersections and pedestrian crossings, signs with other specifications.

The ideal hiking period on *Via Transilvanica* should be chosen according to temperatures, daylight and accommodation possibilities. For the time being, winter hiking is not recommended due to the difficulty of the route in case of snow and the lack of accommodation offers in the winter season. The best times would be May- October, with cool evenings and mornings, but we must not forget that in mountainous areas, the weather tends to be capricious and changeable. Prior weather information is required. It is also recommended to travel during the day, when the day is longer, this way you can avoid dangerous situations (for example: wild animals, wandering or injuries). With the right equipment, temperatures should not be a problem (Ghidul drumețului pe *Via Transilvanica*, 2018).

Another important recommendation from the guide is that the route should be traveled in a team, by two or more people hiking, due to the fact that the route is new and some areas are quite wild. You will also be able to access an application that will tell the traveler on your smartphone exactly what he has to

do. But the guide remains is the best recommended tool before embarking on this journey.

### Conclusions

*Via Transilvanica* can become for Romania an engine of tourism development. The route can be covered in several weeks in whole or in part in a few days, according to the strength and desire of the traveler. The *Via Transilvanica* infrastructure will provide data on accommodation and meals, as well as historical and cultural information of different geographical areas, the project organizers assure us. Those who want to be part of this project, can register as volunteers for marking the route with paint, intersection poles, mounting other markings or cleaning the road. The organizers will announce a few days before starting on certain segments. The days of each action depend on a multitude of factors such as: unfavorable forecast, other Tășuleasa events, small number of km to be arranged, legal issues or other things that may occur along the way and may influence.

The president of the Tășuleasa Social Association is of the opinion that *Via Transilvanica* will bring at least 20.000 tourists, if the proposals related to this project can be achieved. Romania is a country that can offer a lot in the near future, and the current situation we are going through, that of the pandemic, will urge more and more hiking lovers to choose this type of tourism.

**Rezumat.** *Via Transilvanica* este un traseu de 1000 de kilometri care dezvăluie 2000 de ani de istorie a Transilvaniei, de la Putna la Drobeta Turnu- Severin. Este un proiect al organizației Tășuleasa Social, ONG cu sediul în Pasul Tihuța, județul Bistrița- Năsăud, care desfășoară acțiuni cu caracter educațional, social, de mediu, cultural etc. Acest traseu poate fi parcurs după preferințele călătorului, fie pe etape, fie în întregime, pe jos, cu bicicleta, sau chiar și călare. În ajutorul drumeților a fost întocmit *Ghidul drumețului pe Via Transilvanica*, cu scopul de a furniza date despre traseu, marcaje, posibilități de cazare și masă, dar și informații istorice și culturale ale diferitelor zone geografice, locuri sau obiective de interes turistic.

*Via Transilvanica* este un drum care sparge barierele dintre generații și culturi pentru că este dedicat acelor persoane care, indiferent de vârstă, experiență sau locul de unde vin, sunt pregătite ca, pe perioada călătoriei lor, să lase grijile cotidiene deoparte și să reducă numărul obiectelor personale pe care le transportă în rucsac la un minim necesar. Înainte de toate, acest fel de drumeție poate fi o sursă de bucurie, de vindecare sufletească sau meditație. Omul a avut dintotdeauna nevoie de povești care să dea un sens vieții. Motivul principal al acestui drum este cel al descoperirii de noi personaje, povești și, bineînțeles, locuri care pot îmbogăți și vindeca sufletul și mintea călătorului împovărat de stresul cotidian și de prea multe preocupări.

Perioada ideală de drumeție pe *Via Transilvanica* trebuie aleasă în funcție de temperaturi, de lumina din timpul zilei și de posibilitățile de cazare. Deocamdată nu se recomandă drumeția pe timp de iarnă din cauza dificultății traseului în caz de zăpadă și a lipsei ofertelor de cazare în sezonul de iarnă. Cele mai potrivite perioade ar fi lunile mai- octombrie, cu seri și dimineți răcoaroase. Cu toate acestea, nu trebuie uitat faptul că

în zonele muntoase vremea tinde să fie capricioasă și schimbătoare, informarea asupra vremii în prealabil fiind de asemenea necesară. Se recomandă călătoria pe timp de zi, atunci când ziua este mai lungă, în acest fel se pot evita situațiile periculoase (de exemplu: animale sălbatice, rătăcirii sau accidentări). Cu un echipament potrivit, temperaturile nu ar trebui să constituie o problemă. Este de preferat ca traseul să fie parcurs în echipă de doi sau mai mulți drumeți, datorită faptului că traseul este nou și unele zone sunt destul de sălbatice.

*Via Transilvanica* este un adevărat „muzeu în aer liber”, care ne dezvăluie treptat, pe măsură ce-l parcurgem, aspecte despre diversitate, de la firul de iarbă de pe malul Dunării, până la crestele munților; peisajele care se etalează pe măsură ce se trece de la o etapă de drum la alta sunt la fel de diferite ca oamenii care vor străbate acest traseu. În acest fel, se pot descoperi repere importante ce țin de identitatea țării noastre și a locuitorilor săi.

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## GEOGRAPHIC AXES IN THE LOGIC OF SUSTAINABLE REGIONAL DEVELOPMENT

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**Abstract.** The geographical axes are composed of elements and the way in which they behave reflects the functioning states in the system. The functioning connects in a unified complex the totality of aspects acting on these types of structures by integrating them in their natural environment, historical past and relations, offering them the means by which they can adjust to the superior complex (region, country, continent) and can integrate the inferior complexes (networks, nodes, eyes). In a geographic axis, the relations are various, complex and fulfil material, energetic, informational and relational functions. The relations are under the incidence of permanent, temporary and random factors, which influences them and guides them. The relations are synergetic, co-evolutive and of mutual support. By reflection of relations, at different moments in time there are varied states of fragility, degradation, stability or regressivity. The geographical axis can be defined as a spatial temporal force line, which allows in time and space the diagnosis and geographical prognosis of a territory, territory which can embody different geometrical conformations and dimensions compliant with the polarization capacity of components (Pop, 2003). The geographical axes regarded as territorial structures fulfil, offer and include at least three of the characteristics of smart structures, which are: the geographical axes are orderly structures; the geographical axes are coherent structures; the geographical axes are organizational structures. The geographical phenomenon is structured according to specific dimensions, which give the opportunity of systemic ordering for geographical facts which will embody new states, always different from the previous ones, but with proportional loads depending on the material, energetic and informational potential from the system of origin or the system of acceptance. The dimensions of geographical axes, as systems, are functions of the perception capacity and functioning of the system. Also, the axis disposes of other territorial loads such as: historical, demography, settlements, social, education, politics, administration, culture, religious belonging, ethnicity, technical etc. The present state of axis (Sp) not only depends on the present action, but it is also a sum, an accumulation of all the actions already deployed of the past (At).

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The future state of geographical axes (Sv) will also depend on the actions of the present (Ap). Under the form of equations, we have:  $S_p = \Sigma A_t$ ;  $S_v = S_p + \Sigma A_p$ .

**Key words:** geographical axes, sustainable, regional development.

## 1. Introduction

This work aims to study profoundly the self-organization supports of the space under the form of geographical axes, regarding the role of natural, social, and economic axes from the perspective of regional sustainable development. The role of axial geo-complexes is crucial in the organization and functioning of the geographical space, especially in case of complex territories from tectonic structural point of view, such as our country. There are many studies which capture the determinist dimension of large tectonic, structural, and morpho-hydrographic moulds. The specificity of the subject circumscribes this approach in a current preoccupation of geography which asks questions regarding the genetic openings of geographical space and the way in which they condition or favour certain anthropic geographical actions which finally lead to the acquisition of a certain individuality by crystallization of territorial complexes with different shapes, structures and functions. The structuring and evolution of physical spaces in the direction of individualization of geo-complexes of axis type represent one of the most representative conjunctures by which the geographical coordination factors, tectonics, relief, hydrographic network, etc., favour the distribution, typology and dynamics of the habitational anthropic systems, agrarian, industrial, transport, tourist systems etc.

## 2. Definition and composition of geographical development axes

A definition closer to geography can present the geographical axis as a territorial complex. The explanation derives from the semantics of terms "complex" and "territory". The term of complex appears in the geographical work of G. Vâlsan under the syntagm natural complexes. The careful and unpreconceived observation shows that there are natural complexes, on the fact of Earth, which are not accidental, but the result of a kind of polarization of variable intensity, variable extension, variable interdependence (Geografia României, 1983). The clarification of notional expressiveness of the two terms allows to a certain extent the opening of terminological proportions regarding the geographical axis. The attribute of complex for a geographical axis comes from the fact that: geographical axes result from multiple assemblies, they are multicriterial; genetically, a geographical axis is pluriform; the geographical axis becomes polyvalent; the axes embody different conformations; an axis is polymorphic; the development of axis becomes and is multilateral; the manifestations in an axis will have wide conducts of deployment. The structures under the form of geographical axes are not at all accidental constructions and structures, results of polarization, have variable intensity, variable extension, and variable interdependencies. The

geographical axis can be defined as a spatial temporal line of force, which allows in space and time the diagnosis and geographical prognosis of a territory, which can embody different geometrical conformations and dimensions compliant with the polarization capacity of components (Pop, 2003). The geographical axes are composed of elements and the way in which they behave reflects the functioning states. The functioning connects, cements in a unified complex the totality of aspects which act on these types of structures by integrating them in its natural environment, the historical past and relations, offering thus the means by which it can adjust to the superior complex of region, country, continent and can integrate inferior complexes such as networks, nodes, eyes. The geographical axis resulted is an integrated whole which consists of elements, relations, structures, dynamics, processes, phenomena, systems, functionalities and finalities in teleological meaning, balances, methods, models etc. (Pop, 2007). According to definition, if the functional territory of a geographical axis which is analysed is considered only depending on the transport networks, the hydrographic networks, the anthropic networks and their immediate vicinity, then the analysis has a punctual character, losing from sight the integrated desirable character in the analysis of these smart spatial structures. In conclusion, the determination of precise limits in the analysis of structures such as geographical axes would be inadequate for the scientific action.

### **3. Geographic axes of regional sustainable development in the Romanian space**

The territory of geographical units has fulfilled different functions from the ancient times until today, united by close connections and reflecting the objective realities of the natural and anthropic geographical environment, as expression of the unity and individuality of the whole Romanian land. The natural conditions assured the specificity of geographical environment formed by subsystems and regional landscapes blended in a unitary and complex whole. The position, genesis, geological formation, relief and all the other natural elements show that the constitutive parts of Romanian territory developed moulded by the Carpathians. If in his pre-war writings, Mehedinți insisted on the character of natural border of the Carpathians, after the Union of 1918 the founder of Romanian geography ceased to consider the Carpathians a border. But the person who opened the path for the new interpretation of Carpathians as geographical axis of the Romanian national space was Emmanuel de Martonne. In a text published right after the Great Union, to the creation of which E. Martonne has actively contributed, the French geographer overturned the Xenopolian interpretation by claiming that by the formation of the Romanian state the geography took a brilliant revenge against history. From the wall-mountains before 1918, the Carpathians became after union a vital element, an axis, gravitational centre, and spring of nation (Coman, 2013). The centrality of Romanian Carpathians ordered also the radial concentric display of the other steps



of relief, intra- and circum-Carpathian, as expression of the major consistency between the geological structures, the orographic lines and relief age. The Carpathians have imprinted to the hydrographic network... 45 large hydrographic axes from our country (Şoneriu and Mac, 1973), as well as the convergence of meaningful hydrographic and road axes Siret and Prut (Oancea and Swizewski, 1979). From north to south, the rivers Someş, Crasna, Barcău, Crişul Repede, Crişul Negru, Crişul Alb and Mureşul with conspicuous geographical axes of convergence and circulation, which became major commercial routes have facilitated the penetration inside the mountains, which contributed to the attraction of hills and neighbouring massifs into the sphere of economic influence (Cosma, 2002). The intense circulation of Romanians in their whole geographical space, on roads of high significance, as those of woods, steppe and meadow of Siretului River, as S. Mehedinţi showed, the path of Siretului River which connects the Baltic Sea to the Black Sea or the Mediterranean Sea or the roads and railways which go along the Timiş-Cerna Corridor, or Mureşului Corridor and Oltului Pass, and those from Oradea on Crişului Repede Pass, over Transylvania, Braşovului Depression and the passes Bran, Predeal, Oituz and Buzău. These roads are directed either towards Danubian ports, from where they pass to the Balkan Peninsula to the Mediterranean Sea, or to Black Sea harbours, over Dobrogea (Posea, 2006), by gorges, ravines, passes and mountainous cross-sectional valleys, had as result the welding of Romanian Carpathians with the neighbouring regions from inside and outside Carpathians (Geografia României, 1987). Thus, alignments of longitudinal hearths were formed along the hydrographic network from the longitudinal depressions of Troţuşului, Tazlăului and Bistriţei, longitudinal concentration axes specific to Sub-Carpathians of Moldavia, towards which revolves the whole economic and social life of adjacent sectors (Annals of University of Bucharest, 1987) and adjacent depressions form areas of geographical discontinuity in the Carpathian mass, they are detached from the high units, the mountain massifs by the particularity of landscape in which the human activity is very intense and permanent. The morphogenetic, human, and economic particularities locate them in the mountain regions. (Geografia României, 1987). The valley corridors and intramountain depressions have concentrated since early times a strong material and cultural activity, being a true spring of documents. The ancient citadels with functions of defence, strategic and commercial roads. The old commercial roads known since Antiquity and reactivated in the Middle Ages, crossed the territory of Romania, coming from all directions; some were grouped toward the Danube mouths, while others were in transit. The system of roads in Dacia had a main convergence node in Apulum, today Alba Iulia, where were concentrated: the imperial road, the south roads which passed over Vulcan and through Oltului pass, the road from the north from Porolissum, today Moigrad and the east road which crossed through Oituz Pass (Geografia României, 1987). Four

large transport axes converge here: from SW direction, through Oituz Pass, from Braşov; from NW direction, through Ghineş Pass, to Ciuc; from North direction, on Tazlăului Valley, from Bacău and from SE, on Troţuşului Valley, from Adjud. (Şandru, 1975). The axial settlements are betrayed in relief by many gorges, ravines, passes which allowed for the stabilization of old connecting roads (Geografia României, 1987). The Carpathian valleys and passes represented compulsory passage points by which the Carpathians integrated in inter-conditional relations with neighbouring regions, they were axes for convergence and dispersion of people, material goods and spiritual values (Josan, 2002). A conclusive example of the complexity of Carpathians' limits is the structure and different petrography of marginal depressions from the contact with Transylvanian Plateau, Făgăraş, Sibiu, Apold and others; their altimetric position; the weight of types of accumulation relief; areas of hydrographic convergence; specificity of shelter climate or thermal inversion reflected in the profile of soil and in the formation of vegetation; the use of land and its optimization possibilities over time; presence of large concentration centres of population, with a high diversity of industrial objectives, all generating a net differentiated landscape in the limit area, landscape on which the ethno-demographic factor places its footprint. At the outskirts of Carpathians large industrial centres appear, whose economic functionality is connected to the base of raw materials offered by the mountain or its workforce availability. The Carpathians have favoured the appearance and development of many urban settlements, located at the contact with circumscribed Carpathian area. From cultural-demographic point of view, Oltenia below the mountain is at the crossroads of Transylvania with Oltenia. From geographical point of view, it is delimited by Valea Cernei, the Danube and Valea Oltului. From symbolical point of view, Oltenia below the mountain is supported on faith axis by the series of monasteries, which follow the line of hills and mountain profile. Also, it is the axis of history, resistance of peasantry and national pride and it is included in an axis of significant historical places, it is the axis of learnings and still alive stories. Slătioara and the surrounding region abounds in meanings (Bădescu et al., 2011). The tourist potential ranges the Carpathians in one of the top positions in the tourist economy of Romania. The analysis of tourist, natural and anthropic funds, the technical urbanistic equipment, infrastructure, and tourist flow. The town Sebeş, is outlined as centre of economic and demographic convergence of Sebeşului basin. The arrangement of valley represents a remarkable support for the development of tourist function and the strengthening of its role of major road node, with heavy transit traffic, located on the international tourist axis Oradea-Cluj Napoca-Bucharest-Constanţa, E 60. The territorial complexity of Carpathians, the Carpathians and the Danube are truly the two major geographic axes of Romanian history (Bulletin SRRG, 1957).

## Conclusions

The structures such as geographical axes are the beneficiaries of memories, where they accumulate depending on their characteristics, a series of essential parameters of different states, in their most efficient form, to enrich the states in the perspective of durability of the system, sustainable territorial development. For instance, the integration or non-integration of a new aspect in axis would be an important change because the axis would benefit from another state from numerical, functional point of view, etc. As for the previous and subsequent evolution of geographical axes, we retain that the first moments when the structural, functional etc. changes appeared, they have a rough (primitive) nature. The integration, in fact the perpetual nature of integration, allows the start of a perfection process of these changes. The finalities are post-threshold states defined by the increase of efficiencies, yields and reduction of useless losses of substance, energy, information, space, time etc., in geographical axes. Regarded as a whole, the architecture of geographical axes has to acquire a more meaningful role as attractors in order to allow, among other things, the increase of behavioural complexity, perfection of controls and self-controls and a more sustainable functioning in geographical axes. Any aspect of load can relate alternatively with two or more elements, but also with the environment. In this system, it connects in the same sequence a decision which commands the action together with the system level and the information about the system level. The information provided about the condition of geographical axes is the basis of current decision which commands the action. The action at the level of a subsystem from the geographical axis changes the level of the whole axis system. The real up-to-date level of axis is the main generator of information about the whole sum of actions which should be carried out at the level of the whole system of the geographical axis analysed. The present action corresponds to the present decision of sustainable territorial development, which in its turn, depends on the present information, which was accumulated over time. The present state of axis ( $S_p$ ) does not depend on the present action, but is a sum, an accumulation of all actions already carried out in the past ( $A_t$ ). Only the future condition of geographical axes ( $S_v$ ), will also depend on the actions of the present ( $A_p$ ). Under the form of equations, we have:

$$S_p = \Sigma A_t, S_v = S_p + A_p.$$

**Rezumat.** Axele geografice se compun din elemente, iar modul în care acestea se comportă reflectă stările de funcționare în cadrul sistemului. Funcționarea leagă într-un complex unificat ansamblul aspectelor care acționează asupra acestor tipuri de structuri integrându-le mediul lor natural, trecutul istoric și relațiile, oferindu-le astfel mijlocul prin care se pot adapta complexului superior (regiune, țară, continent) și pot integra complexele inferioare (rețele, noduri, ochiuri). Într-o axă geografică relațiile sunt diverse, complexe și îndeplinesc funcții materiale, energetice, informaționale și relaționale. Relațiile stau sub incidența factorilor de tip permanent, temporar și aleator, care de altfel le influențează și le

direcționează. Relațiile sunt de tip sinergetic, coevolutiv și de susținere reciprocă. Prin reflectarea relațiilor, rezultă la momente diferite de timp stări variate de fragilitate, degradare, stabilitate sau regresivitate. Axa geografică se poate defini ca fiind o linie de forță spațio-temporală, linie ce permite în mod temporo-spațial diagnosticarea și prognozarea geografică a unui teritoriu, teritoriu ce poate îmbrăca conformații geometrice diferite și dimensiuni conforme cu capacitatea de polarizare componentală (Pop, 2003). Axele geografice privite ca structuri teritoriale îndeplinesc, oferă și comportă cel puțin trei dintre caracteristicile structurilor inteligente și anume: axele geografice sunt structuri ordonate; axele geografice sunt structuri coerente; axele geografice sunt structuri organizatorice. Fenomenul geografic este structurat conform unor dimensiuni specifice, care dau posibilitatea ordonării sistemice pentru fapta geografică, care astfel va îmbrăca stări noi, diferite întotdeauna de cele precedente, dar cu încărcături proporționale în funcție de potențialul material, energetic și informațional dinspre sistemul de proveniență sau cel de acceptare. Dimensiunile axelor geografice, ca sisteme, sunt funcții a capacității de percepere și funcționare a respectivului sistem. De asemenea, axa mai dispune și de alte încărcături teritoriale cum ar fi: istoric, demografie, așezări, social, educație, politică, administrație, cultură, confesiune, etnie, tehnică etc. Starea prezentă a axei (Sp) nu depinde doar de acțiunea prezentă, ci este o sumă, o acumulare a tuturor acțiunilor deja desfășurate, trecute (At). Starea viitoare a axelor geografice (Sv) va depinde și de acțiunile prezentului (Ap). Sub forma ecuațiilor avem:  $Sp = \sum At$ ;  $Sv = Sp + \sum Ap$ .

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