

**THE IDENTITY DIMENSION OF NATURAL LANDSCAPE IN  
GIURGEU BASIN. CASE STUDY: DITRĂU VILLAGE IN  
HARGHITA COUNTY**

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**Key words:** landscape, participation, civic, protection.

**Abstract.** The ecological construction and restoration are European goals, which must be subordinated to the will of the community. Even if the economic will is primary in the era of continue globalization, the developed community spirit of residents to preserve natural heritage gains laudable civic meanings. The residents of Ditrău showed much willingness and respect for the nature of the place through all the initiatives promoted and supported with a spirit developed to protect the natural landscape.

**Introduction**

**According to the European Convention of Landscape "every citizen should contribute to maintaining the quality of the landscape ..., public power is responsible for defining the general framework that can ensure its quality ..."**Starting with the comprehensive legal framework underpinning the construction and building an united Europe based on the fundamentals of sustainable development, we propose a case study that comes out of the well-known patterns of economic development, which raises doubt about the legality of such initiatives. At the risk of being called anti-capitalists, this study shows us above all how the community can become an active player of development and, especially, proving the spirit of heritage, community and identity (worldwide geological brand by "ditroit") on preserving the natural landscape.

The Italian company S.C. Ditrău Mining Corporation Ltd., controlled by Italian giant "Gruppo Mineralli" has laid eyes for years on the nepheline syenite in Ditrău, Harghita County and wished at any cost to open a career there. With an

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investment of about five million euro it promised 26 jobs for locals and ... unexpected and uncertain damage on the local natural landscape. We are facing a new case, similar to Roşia Montană, only on a slightly reduced scale and merited media impact.

*The hercynic alkaline massif from Ditrău* belongs to the series of epimetamorphic shales in the Eastern Carpathians (Tulgheş series) and it appears as a magmatic-metasomatic massive with a total area of about 170 km<sup>2</sup>. The syenitic rocks have blue and yellow wax spots due to the presence of sodalite and cancrinit / titanium feldspatoits and have been initially described in the first part of the nineteenth century, in the geological and geographical notes on the northern area of Topliţa basin, respectively on the region of syenitic massif of Ditrău. In 1822, on the map made by S.F. Beudant and then, on the one studied by Lill de Lillenchbach in 1834, there are references to the sedimentary formations in Hăghimaş as well as on the crystalline series of Tulgheş and Neogene eruptive. In 1854, A. Bielz published the Geological map of Transylvania, at a scale of 1:864000, in which there are references to the constituent rocks of the region; and in 1855, the mineralogist A. Achner characterized the rocks of the Ditrău massif. Fr. Herbig (1872) published his comprehensive research on the geological region of Ditrău in terms of petrographic and petrochemical characterization, describing the syenite with sodalite and cancrinit, which would be called afterwards "ditroit" by F. Zirkel. Zirkel introduces the Ditrău syenite with sodalite and cancrinit in the world geological literature as "ditroit", thus the locality gave the name to the rock and the rock has brought fame to the locality ("geological brand "). V. Ianovici (1929-1938) investigated the region of Ditrău massif and, in particular, the basin of Jolotca valley, which he described from a mineralogical and petrographic point of view and made references to the paleogeographical evolution of the whole syenitic massif.

In 1960, A. Streckeisen, after long researches begun in 1931, presented at the International Geological Congress in Copenhagen a summary paper on "Structure and origin of Ditrău Massif", in fact, the final part of a monographic work in two volumes dedicated to this region. Extensive geological contributions on Giurgeu basin have also brought: Venera Codarcea, Mariana Corbu, Jeana Marinescu, C. Martiniuc, Clarissa Papacostea, G. Jakab, E. Constantinescu, Şt. Airinei and so on.

*Muntele Mare/Ūjhavas*, the target of future mining, is a peak easy to identify because of its round appearance, east of Ditrău village, almost completely forested with secondary meadows and grassland, well separated from the two valleys: Ditrău brook heading west towards Mureş valley in Giurgeu depression and Putna Norioasă brook moving towards east in Bistricioara basin(Fig. 1).The south-eastern slope of the mountain is more abrupt while the other slopes are much gentle, for they function as the junction with the main ridge of Giurgeu mountains.

The area is situated at about 1100 and 1459 meters altitude and, due to local microclimate of slope with spruce forest above the maximum intensity of temperature inversions specific to the hearth of the depression, it is the beneficiary of a more stable heatstroke due to its exhibition and productive meadows and pastures in glades. These forests correspond to the type of habitat included in the Annex. 2 of Government Emergency Ordinance no. 57 of 2007, respectively "Acidophilous forests with *Picea* from the alpine mountainous area "(*Natura Code 2000: 9410*). In terms of geological composition, Muntele Mare is composed mainly of syenite specific to Hercynic Massif from Ditrău. The syenite is an intrusive igneous rock from granite family of rocks; it is composed of large and well developed crystals from the isomorphic series of oligoclaz and ortoclaz feldspat, near which significant proportions of amphibole and, rarely, biotite and quartz are associated with. Besides the main minerals inside syenite, there may appear a lot of paraphernalia minerals whose presence influences the color of the rock. Among the most common paraphernalia minerals there is the titanit, which is yellow wax to soft brown, to which we often meet minerals such as apatite and magnetite. The difference between granite and syenite consists in the presence or absence of quartz and micelles, so in granite, quartz is present in a ratio of 20-60%, while in syenite, it is present only in a proportion of 0-20%. From the chemical point of view, the syenite composition contains: oxides of silicon, aluminum, iron, magnesium, calcium, sodium and potassium. Because of these geological differences we often find intermediary rocks between the two types of related volcanic rocks.

**The Mining Project "Ditrău Career".** The Italian company S.C. Ditrău Mining Corporation LLC, the developer of the surface mining project of the nepheline syenites from Muntele Mare considered that all the legal paths have been followed. In contrast, the surface mining would dislocate half of the mountain, would irreparably damage the natural landscape of the area and would carry through the city 8 million tons of rock, damaging the county's roads in stage of modernization( CR 127) as well as people's estates; it would pass by schools and religious institutions and it would produce significant pollution by dust and noise, it would harm farmers and breeders of domestic animals as well as the tourism in the process of development.

**Operation expected in facts and figures.** The exploited syenite will be processed in a crushing-sorting station, and will be transported for final processing at the factory in the industrial area of Ditrău, respectively near the railway station. The expected amount of geological extract for 20 years will be 8.35 million tonnes, and the volume of nepheline syenite sent to the processing will be of 6,305,091 tonnes. For the extraction of rocks it was adopted the method of surface mining, in career, with horizontal steps, downward progression through drilling-blasting, with

the temporary storage of secondary product in inner dumps of the career. The work of opening: will be represented by the totality of activities aimed at achieving access to the reservoir, namely the steps of operation, and implementation of the attack platform. Preparation work: will be represented by the necessary work to release the working front, so the extraction of useful mineral substance can be made.

The technological stages proposed by the economic developer:

- *Removal of the land from the forest area and clearing the vegetation* will be done in phases, depending on the advance of the work in quarrying. On the first phase the existing vegetation (trees, bushes, shrubs) will be removed, after which the scraping of necessary field to the work front from the strictly necessary area will be done. Please note that the age of the forest area is around 90 years, and since 2014 the opening of operation of that forest is scheduled.



Fig. 1 - Location of the mining project "The Operation of nepheline syenites in the perimeter of Ditrău Valley-Muntele Mare "from " Natura 2000 " site which occupies the eastern slopes of the Giurgeu Depression and the western of Giurgeu Mountains (ortophotomap 1:5000/2006-2008)

- *The work of stripping the topsoil* will run in the first stage, and fertile soil d will be stored selectively in a temporary storage of soil cover, where it will be used to the ecological reconstruction at the final exploitation of a part of the exploitable reserves.
- *Simultaneously with the operation of syenitic reserves* and advancement of the working front, the necessary fields to expand the career will be stripped of topsoil into parallel, successive strips widths equal with the annual advancement of the career step. Final safety stairs (5 m wide) and gradient slopes, which will not be affected by the exploitation works, will be re-greened by covering them with

topsoil from temporary deposits held in the stripping phase.

- *Work of exploitation*: the geological conditions of the deposit and the geomorphology of the terrain permit a rational exploitation of exploitable reserves by the method of mining by straight downward career steps. Displacement of usefulness will be done by blasting with explosives.

### SWOT Analysis

#### Strong points

- Existence of profitable rocks;
- Existence of infrastructure;
- Creating jobs (26);
- Development of community

#### Opportunities

- Working with some local decision makers;
- Superior capitalization of mineral resources;
- The future highway Tg. Mureş - Iaşi which would pass through here, would bring benefit to the company by using sterile in the operating for this potential investment etc.

#### Weak points

- Lack of cooperation between the investor and the community (summarizing only to the privileged "relationship" with the former mayor since 2008);
- Forcing the local and county decision by threats;
- Neglecting the community and civil society concerning the project development;
- Undervaluing the negative environmental impact.

#### Threats

- Long-term negative impact on the environment;
- Chemical pollution (pollutants, gases) and noise;
- Very long term irreversible destruction of ecosystems in the area: 20 hectares of forest of over 90 years;
- Decreasing the investment in agro-tourism;
- Effects on sanogenic status of the population (basin space, microclimate) and increasing the technological stress induced by carriers as well as increasing the danger of road accidents around schools, kindergartens, church;
- Destruction of DJ 127 (Ditrău-Tulgheş) in technical process of re-modernization and designed for a maximum tonnage of 7.5 t. This county road which ensures the connection between DN 12 and DN 15 over Țengheler step already generates the development of agro-tourism development and may stop investments in the sector.

### 1. Community impact of the project

On October 1<sup>st</sup>, 2006 Local Council of Ditrău held a referendum about opening the career of Syenite. According to official results, 54.55% of 4906 people eligible to vote participated in the vote, 96.77% of those present at the polls, voted against the mine. After the referendum, the Italian investor began the process of achieving the Zonal Urban Plan (ZUP), the public debate being a part of these proceedings. The public debate held on 24<sup>th</sup> of July 2007, at the Town Hall in Ditrău aimed at discussing the impact study of the career of Syenite prepared for Zonal Urban Plan (ZUP). Before the public debate, until July 20<sup>th</sup>, 1200 locals and numerous NGOs have submitted petitions to the Environmental Protection Agency in Harghita. Through an appeal, *Green Transylvania Association* drew attention to the fact that Zonal Urban Plan (ZUP) is not consistent with the General Urban Plan (GUP) of Ditrău, taking into consideration that the procedure regulated by Government Decision no. 1076/2004 and the Order of the Ministry of Public Works and Planning no. 176/N/2000 was not complied. Public debate was awaited with great interest by local residents who showed their disagreement towards this project (Fig. 2, photo).



Fig. 2 - Photos with pictures of the actions promoted by the Green Transylvania Association and which had a positive impact and enjoyed the unconditional support of the community  
(do not want dust!= in hungarian)

**The major landscape impact** in this case is therefore sufficient reason to reject the application for environmental permit even if there were no other significant negative impact. Or, they existed and they were inevitable for extended surface mining. Actually, this has resulted from the very text of the environmental report for the ZUP, which indicated a negative impact on the natural environment: geomorphological and geological structures, air, water, vegetation, fauna, soils, as well as on population and human elements (local farms). We underline that GUP

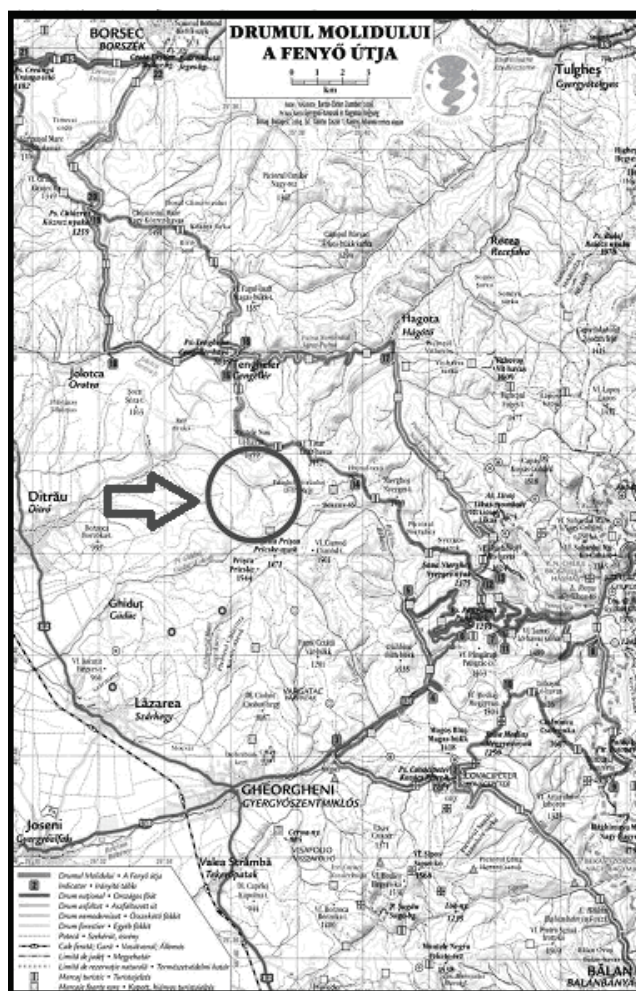


Fig. 3 - “The way of spruce”, agro-touristic promotion and development path of Giurgeu Mountains area and Hăghimaș Mountains, connecting Bălan and Borsec

and ZUP are normative regulatory acts in hierarchical relationship, ZUP having inferior rank and therefore according to the principle of hierarchy, expressly stated in Law 350/2001, had to take over and conform to PUG, which in turn had to assume and comply with the County Territorial Development Plan (CTDP) and so forth, and back a Detailed Urban Plan (DUP) can not fail to comply with the ZUP,

and a building permit can not be inconsistent with planning regulations. A ZUP can make breakdowns, information, adaptations, adjustments or any minor exceptions to the PUG, in no case modify it, or have major differences, otherwise being illegal and void, as it would be a ministerial order that would violate G.D. or a G.D. which would derogate from the constitutional organic laws. Therefore, the mere fact that the proposed ZUP was clearly inconsistent with the GUP was considered a sufficient reason for rejecting the request for an opinion from the start, even if, apparently, its provisions would have been lawful, timely and partly acceptable. In conclusion, we note that there were procedural abnormalities in the development and promotion of documentation that has tried to circumvent the law.

## **2. The involvement of decision makers in the county administration**

Now Muntele Mare / Újhasas near Ditrău - where the mine opening is planned –is an area with high tourism potential in the general urban plan for the country, due to the County Council proposal. This plan decides the main thrust of county urban plan in preparation stage, and the territory mentioned above will be placed in the area with high tourism potential (Fig. 3). This is the main argument of rejecting the Italian firm's documentation, said the president of Harghita County Council, Borboly Csaba. However, the Italian company reported to County Council Harghita that it has already been summoned from a law firm, to approve the implementation of syenite operation, otherwise the company will bring suit for alleged profits over several years.

The president of Harghita County Council reported that the promptitude of Ditrău City Council is required in the public interest. "In this way I sent a letter to the mayor of Ditrău for quickly approval at least for Zonal Urban Plan (ZUP), respectively, immediately thereafter, requiring urgent approval of the new General Urban Plan (GUP) of the village, in which to be mentioned clearly that on the respective field there is no place for setting up an industrial investment. Our decision respects the desire of the inhabitants, but the company which wants to invest in the area even against the will of residents on long-term and in court may achieve its goal. This should be prevented!" - concluded the president of the County Council.

## **Conclusions**

The ecological construction and restoration are European goals, which must be subordinated to the will of the community. Even if the economic will is primary in the era of continue globalization, the developed community spirit of residents to preserve natural heritage gains laudable civic meanings. The residents of Ditrău showed much willingness and respect for the nature of the place through all the



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