

## IDENTIFYING AND USING THE NATURAL AND HUMAN RESOURCES FOUND IN THE AGHIREŞU FABRICI – BĂGARA REGION

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**Abstract:** *Natural and human resources are the main vectors for the development of any territory. The scientific substantiation of these resources is an important pillar of territory valorisation. Writing projects for the valorisation of existing resources can contribute to the preparation and substantiation of possible development projects eligible for EU or national funding. The natural and human resources in the Aghiresu Fabrici - Bagara region have not been valorised enough for many reasons: privatisation of processing units, migration of the young workforce to the city, lack of interest and involvement of young people in learning this activity and the lack of a youth training centre that could help the youth acquire knowledge and experience in extractive and processing industries. The present study is aimed at identifying the natural resources in this region and at proposing a customised valorisation that can lead to its harmonious and sustainable development. Potential or existing investors can support this development by attracting funds to be invested in this region.*

**Keywords:** *natural resources, valorisation, industry, development, region, GIS*

### 1. Introduction

Existing resources in the area Aghireşu Fabrici - Băgara are varied, from human resources available (with reference to the existing workforce in the complex) and continuing with natural resources, which consist of: subsoil resources, water resources, soils and resources plant, developed in strict correlation with existing landforms and over time have changed and imprinted distinct habitat, according to food and housing needs of existing communities in the area. [2]

This study attempts to identify as fairly and accurately existing resources in the complex relations between them and that gave a certain identity of the area and determine if they are adequately capitalized (main economic activities within the zone are represented by agriculture and industry resources in the region but offering the possibility of developing more diversified economic activities).

### 2. Methodology

Achieving this study involved tracking more research stages and each stage have used one or more methods specific workflow specific geography as a science.[1] The methodology used was based on the identification of existing resources in the area, namely subsoil resources, water resources, soils, plant resources, human and economic resources.

Processing of primary information was accomplished by use of bibliographic and cartographic methods being consulted bibliographic sources, and electronic sources to identify case studies in-country or abroad and have been prepared background materials that were to be used field ortophotoplans in 2010 focused on the built environment.

In the next stage of research that is documentation in the field were conducted field trips in the studied area, showing photographs of some items of interest were taken statistics from institutions such as the town hall Aghireșu methods used as method observation and photographic method.

Statistical data obtained from various national or regional studies were measured using quantitative means research and analysis and processing of information obtained from research in the field were used means of qualitative research.

In the last phase they were processed and interpreted data by the method of statistical analysis and synthesis ending with writing of the study.

The materials used for the preparation of this study consisted of demographic data, economic data, topographic maps, geological maps, soil map, orthophotos, and were obtained from institutions such as the Department of Statistics Cluj, Village Hall Aghireșu, Office of Cadastre and Land Registration Cluj-Napoca, OSPA Cluj, APIA Cluj-Napoca and various specialized sites.

### 3. Geographical Location

Aghireșu commune is located in the northwestern part of Romania, at the contact between Cluj and Salaj counties in northwestern extremity of Cluj County, and belongs Transylvanian Basin and its subunit, respectively Someș Plateau. [3] Located in the central-eastern commune Aghireșu and included in the southwestern part of the Someș Plateau, hilly subunit Depression of Transylvania, the study area has an overall hilly topography, with altitudes between 400-500m. In terms of administrative borders with the following communes: Cuzăplac Salaj County (north and northwest), Gârbău (East), Căpușu Mare (southern) and Izvorul Crișului (southwest).

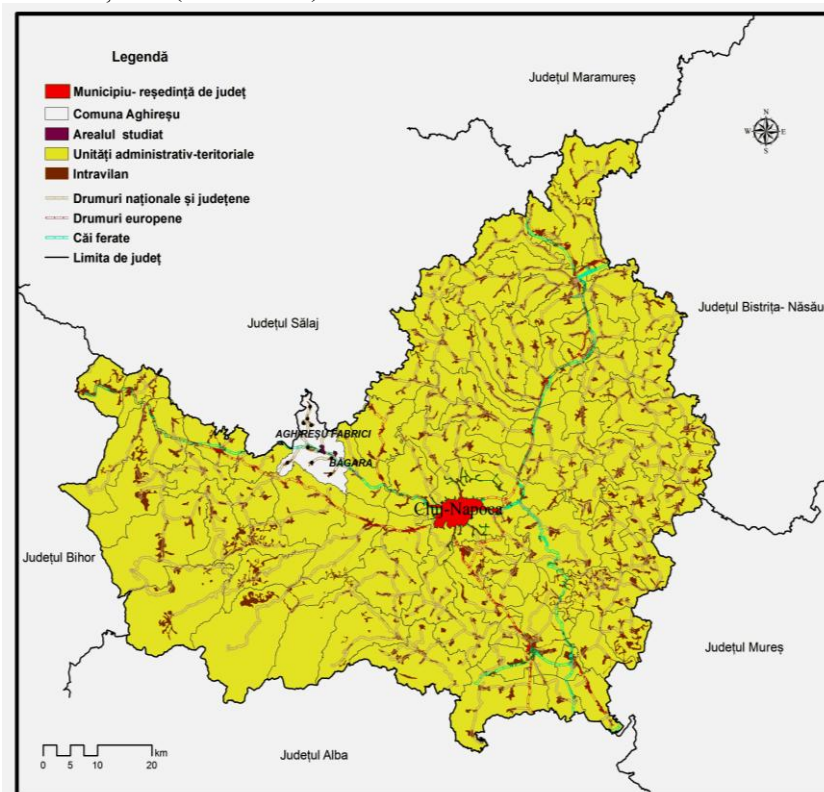


Fig.1 Geographical location of the study area within the county

The investigated area consists of communal residence Aghireșu – Fabrici, located approximately in the central territory of the commune, the county road DJ 108C, which has a SE-NW direction, linking the two villages Aghireșu Fabrici and Aghireșu -Sat and roads are drawn from it, be they county (DJ 108N) or communal (DC 137, DC 138, DC 140A).

Băgara village, located in the central eastern part of the commune, communicate with county road DJ 108C via communal road DC 140A. [6]

#### **4. Natural Resources**

The study area Aghireșu Fabrici – Băgara represent a particularly complex because of the existence of soil and subsoil resources, unique and representative, which combined with anthropogenic resources, form a synergy almost complete and distinct between all factors and elements identified in the studied area, a synergy leading to individualization study area compared to neighboring units. [2]

Subsoil resources are present as kaolin deposits in the village Aghireșu -Fabrici, yellowish eocene limestone in separate layers, of marl and gypsum are between localities and Aghireșu Gălășeni, gypsum is found in cities and Aghireșu Leghia [6] quarto-kaolin deposit of sands from Aghireșu [3] and brown coal deposits in the Băgara village. [12]

Water resource are represented by the surface- waters Nadășului Valley with its affluents (Ruginoasei V., V. Caolinel, V. Great Brook Bohozelnicu) [3, ]appearances of mineral sulfate, calcium, low bicarbonate, hypotonic and atermale (Leghia area) and 14 anthropogenic water units, formed by rainwater filling depressions home waters resulting from the mining of kaolin, lignite ore and construction materials. The largest areas are represented by the Blue Lagoon lake and other two lakes in Băgara . [4] Blue Lagoon was formed on the site of a former kaolin mines, its particular color due to the kaolin residues lying on the bottom of the lagoon, being surrounded by sand dunes. Currently lagoon is private property, belonging to the group MG-Tec.

Soils encountered in the study area are characterized by some mixture being identified brown soils with their classes (soil argillic brown, brown soil luvisol) luvisols, regosols (regosol litic regosol mollic, regosol renozinic, regosol typical), renozinic soils black and alluvial soils (alluvial soil and alluvial soil typical Gleize). Must be said that that due to missing or inaccurate data in this project have used the old names of the types of soils.

Vegetal resources are divided into plant resources resulting from agricultural activities (crops: fodder plants, pulses, oil plants, potatoes, cereals and fruits) and plant resources in forests: forests of oak species oak and sky, oak forests mixed with beech, poplar, birch and hornbeam, and species like wild hair, wild apple, hazel, hawthorn and hawthorn. Other vegetal resources present in the region are forest berries (blackberry and rosehip), mushrooms and herbs. [6]

Protected areas are situated on territory as a complex conservation, botanical, geological and landscape namely protected area of national interest "Casts from Leghia". [6]

#### **5. Human Resources**

The demographic potential, through its quantitative and qualitative components, has a particular importance in determining the role of localities in the settlements system, both at regional level and at regional or national level.

The study area represents a rural area fully grouping a population of 3594 inhabitants [9, ]most people converge on communal residence Aghireșu-Fabrici (3193 inhabitants), while the village Băgara recorded a number of just 401 inhabitants.

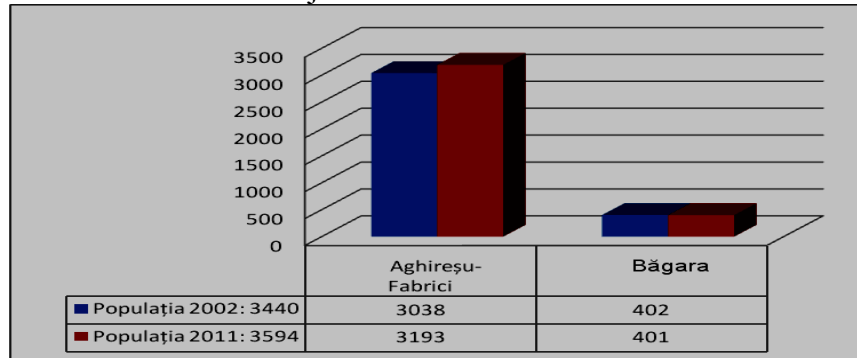


Fig 2. The numerical evolution of the population between 2002-2011 [8] [9]

Regarding the evolution of the population in the study area (Figure 2), can be seen in the figure above, an increase in population with a share of 4.5%, the total population is changing from 3440 inhabitants in 2002 from 3594 inhabitants in 2011. Most of the increases occurred in the village Aghireșu-Fabrici while Băgara village recorded a decrease in the number of inhabitants.

	Populație totală 2011	0-14 ani	%	15-64 ani	%	>65 ani	%
Aghireșu-Fabrici	3193	443	13,87	2331	73,00	419	13,13
Băgara	401	60	14,96	268	66,84	73	18,20
Total	3594	503	14,00	2599	72,31	492	13,69

Fig. 3. Structure of population by age groups in 2011 [9]

By age chart of the population in the area Aghireșu Fabrici- Bagar (fig. 3) is relatively unbalanced share of young population is only a few hundredths higher than that of the elderly, the most representative share of the adult population being represented, the area presents obvious aging trends.

Natural population dynamics have a tendency to stabilize the values of birth and death which causes a negative natural increase and hence a decrease in the number of inhabitants in the commune. Migration growth, similar to the naturally present negative, and losing attractiveness region with the closure of quarries in the area and the migration of young people to urban areas. (Fig. 4)

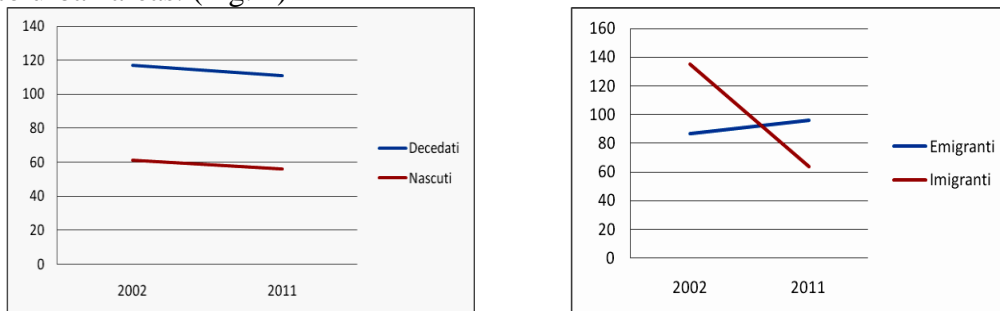


Fig. 4. Dynamics of natural (A) and migratory (B) of the population in the Aghireșu commune [8] [9]

Comparative analysis of transformation labor situation in the studied area (Fig. 5) shows an increase in the active population in both localities, growth which does not fall in the share of active population, this recorded a 30% decrease for village Aghireșu- Fabrici, and 37% for Băgara village, suggesting a high number of unemployed people.

Anul	Localitatea	Pop. totală	Populația activă		Populația activă ocupată		Populația inactivă
			Abs	%	Abs	%	
1992	Aghireșu- Fabrici	3422	1582	46,2	1438	90,1	1840
	Băgara	432	216	53,8	216	100	216
2011	Aghireșu- Fabrici	3193	2067	64,7	1235	59,7	1126
	Băgara	401	221	55,1	139	62,9	180
2011-1992	Aghireșu- Fabrici	-229	485	18,5	-203	-30,4	-714
	Băgara	-31	5	1,3	-77	-37,1	-36

Fig. 5 Transformations in the structure of employment [10]

## 6. Economic Resources

Occupations and main economic activities are related obviously the primary use of resources available in the area.

The economic agents existing in the commune Aghireșu recorded a total of 83 units which are divided as follows: 6 agents industrial, 8 construction companies, a facility tour and 68 companies with commercial activities. Regarding the location of economic production units, commune residence, Aghireșu-Factories, concentrates a significant share (58%) of the total 83 economic units recorded on commune therefore also a very high level of development. Băgara village recorded a very low weight, less than 10% of all production units are concentrated in the village. [6]

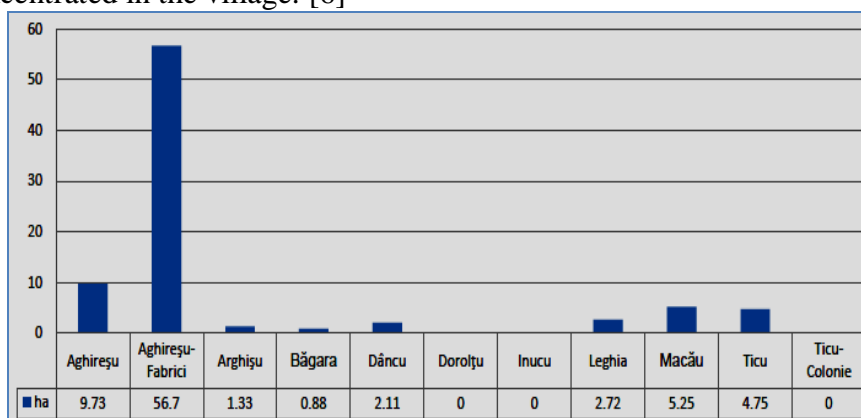


Fig. 6 Concentration of Establishments economic communities (2009) [6]

Agriculture represents one of the basic economic activities in the area studied agricultural areas with a share of 74.3% (7860 ha) of total land area of the village in 2014, of which the most important is the share of arable land (39.6%), followed by pastures (32.3%), meadows (27.5%), while orchard nurseries and vineyards have a subunit percentage (0.5%). [11]

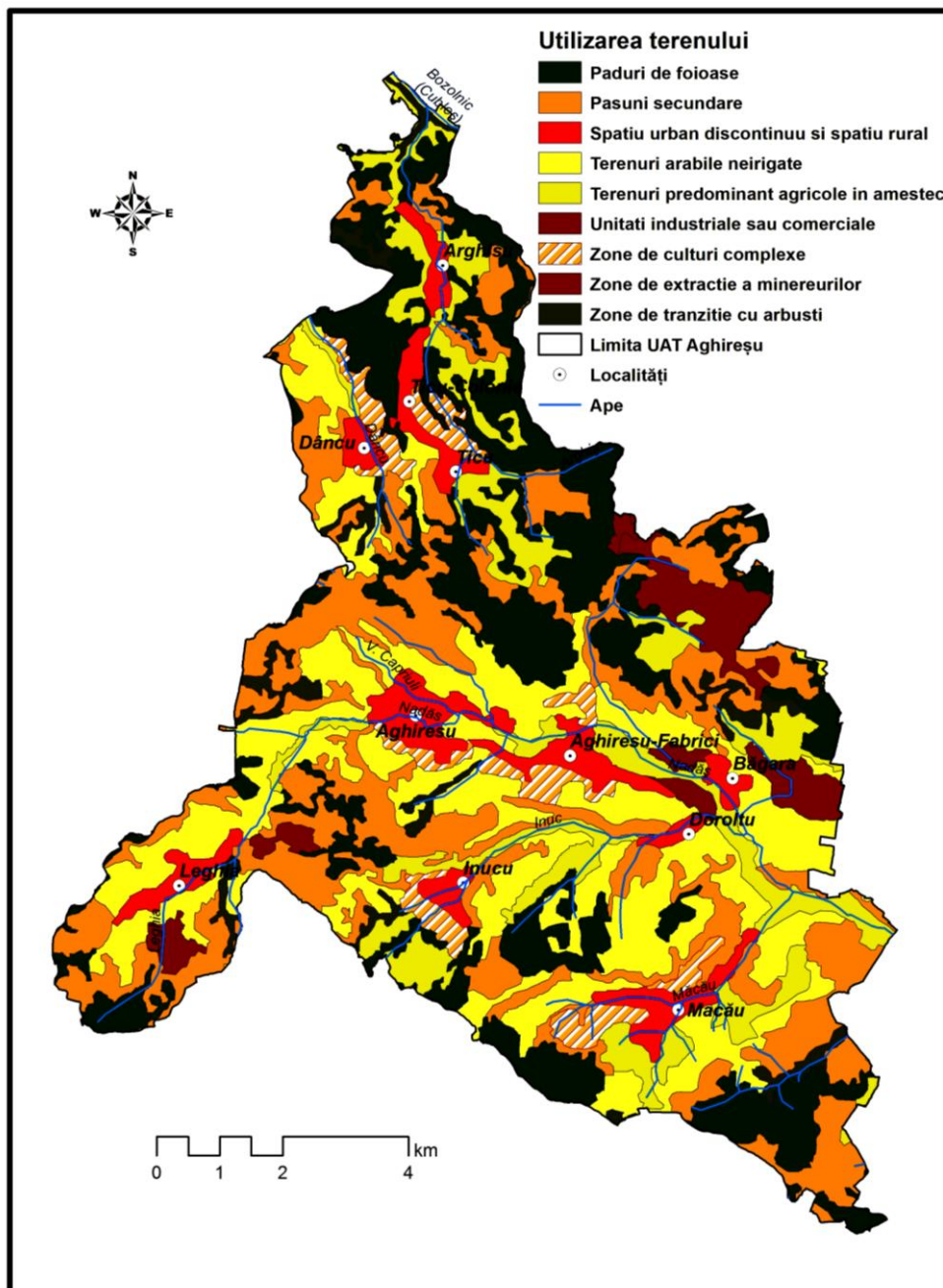


Fig.7 Use of land in the area Aghireșu Fabrici-Băgara

Compared to the total surface covers about non-agricultural land. 25.7% of which hold significant share of the forests (54.6%). Their main use is the production of wood (57%), followed by class protection forests (30.1%), use the lowest recorded on the forests of tourist interest (1%). [6], [11]

The endowment degree with mechanized machinery is highly diversified, with a total of 468 machines, ranging from modern equipment (mowers, tractors) to machinery rudimentary (carts), suggesting that the traditional agriculture of subsistence is intertwined with an agriculture based on agricultural associations, which ensures high performance and high productivity. [7], [11]

Based on the analysis of the situation in agriculture, I propose the following directions of economic development by exploiting agricultural resources:

- merging of farms and promote various forms of association with the purpose to improve agricultural activities and in terms of recovery with maximum efficiency of agricultural products;
- practice organic agriculture in the context of a highly demanding market of organic products and regional county;
- renting land for cultivation surfaces as stretched to achieve an economically competitive agriculture;
- attracting young labor force and qualification by organizing preparatory courses for knowledge and application of new knowledge in the field of modern agriculture,
- establishing a network of marketing agricultural products, which belong to associations of local agricultural producers with the aim of spores value of agricultural products and increase farmers' incomes.

Industrial activity is the dominant economic activities of the commune, localities of the study are specialized in extraction and processing of non-metallic substances. Major construction or industrial units in the area are:

- SC Bega- Minerale Industriale SA – mining of kaolin and quartz sands, with headquarters in Băgara village.
- SC Sineat SA (former SC Lafarge Ipsos SA)- specialized in the production of plaster and gypsum, with headquarters in Aghireșu- Fabrici village.

Local economic development is currently dependent on future prospects of SC to himself. This made some geological prospecting following which resulted from the resources of gypsum quarry Aghireșu are running out. So they plan to open a new quarry operation in the village of Dumbrava, located at the boundary between the municipalities Aghireșu and Căpuș. Future plans include intentions to build a new factory with a high degree of mechanization and higher activities that could harm the local population because they could lose their job.

The proposals related to economic development of the area by exploiting industrial optimal achievement of the following priority actions include:

- realization of specialized geological prospecting to assess the quality and quantity of coal deposits in Băgara village;
- making investments in the modernization of industrial units SC Sineat SA și SC Bega- Minerale Industriale SA – through shares of technology, expansion of the production halls or even a partnership between them by developing common or complementary product lines;
- upgrading of the technological processes through actions refurbishment and acquisition of industrial equipment performance and expanding of production capacities of industrial units;
- arranging and tourist capitalization of existing industrial platforms in a state of degradation in the village Băgara as industrial cultural heritage items.

## **7. Conclusion**

In the studied area, which is represented by an entirely rural space and where the dominant activities are the primary ones (such as agricultural and industrial activities), the natural elements combines and contributes to human ones, through their availability in the territory, providing favorable conditions for establishing and retaining human communities in



the territory. These activities recovered spontaneously / intuitive advantages of position, environment and natural resources of the area. Supported by appropriate local economic development policies they can revive the engine area and ensure better conditions of life of its inhabitants.

Identifying all these resources, both natural and human, is an overview of important aspects, socio-economic and spatial development, triggering a process designed to support the recovery of resources for the territory in question.

Elaboration of projects to exploit existing resources can contribute to the preparation and substantiation of possible development projects, potential recipient of EU and national funding. [5]

Industry, which proves one of the relatively dynamic sectors in the region, but with a latent potential that require capitalization can become a priority in the current context given the potential and existing resources of the area.

Linking industry projects with infrastructure, environment and business development projects must also be taken into account to achieve sustainable economic development of the area.

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