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THE BIOHARMONIZED RECONNECTION OF THE AGRICULTURAL SYSTEM IN ROMANIA'S TERRITORY IN THE PROCESS OF ADMINISTRATIVE REORGANIZATION

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Abstract

Territorial reorganization is a concern at the European level and of the component states in order to adapt to the requirements of contemporary society. Romania is an eloquent example in this sense because of the major imbalances of all kinds which have been accumulated between Romania's counties based on an outdated model of territorial organization having serious socio-economic and political implications. In this context, the paper aimed to find a performant, optimized and balanced solution through a new approach based on the principles of the concept of "societal bioharmonisation". A conceptual and methodological mechanism is described which is based on the evolution of the development in the convergence with natural resources (relief, waters, forests, land categories) with food territorial security through production and agri-food potential, based on human and financial resources, with the quality of life and (through purchasing power and life expectancy) of the local community. The research methodology included: bibliographic study, data collection and processing using different procedures like: multi-criterion analysis, pointing method, weighting method, the weighted arithmetic mean, comparisons among the extreme regions etc. A series of calculation formulas were used to quantify through the necessary objective indicators and to reorganize the territory from 41 counties with huge gaps among them at present to 11 balanced departments and the capital separately as shown in the proposed new Model of territorial administrative balanced and bio-harmonized organization. The offered solution shows that by harmonizing the factors taken into account in terms of agriculture and food (for example: weighted arithmetic mean etc) a level of bio-harmonization of the administrative-territorial structures of Romania is reached with the potential integration, efficiency and balance, thus reducing the differences in the economic development and life quality. A significant decrease of the polarization of the society development and improved life quality is assured by the new Model so that the difference among the territorial units was diminished from +/- 110 % to a much smaller difference of +/- 14 %, without taking into consideration Bucharest which operates like a metropolis. In this way, the new administrative organization induces through the proposed model an optimized utilization of the resources and a greater equity by bringing closer the opportunities offered to the population throughout the country.

Key words**:** *agro-food system, bio-harmonization, territorial governance, resource optimization, a new model of territorial administrative organization for Romania*

INTRODUCTION

The challenges of the present make necessary research and studies on the societal reform and administrative reorganization for adapting to the current conditions. We are referring especially to the period after the year 2020. Thus, as a result of the actual overlaping crises, mainly regarding the climate change and geo-political crises (e.g. the consequences of the war in Ukraine and in the Middle East), it becomes mandatory for Romania to adapt to the new requirements and situations of the current reality. Adaptation means a better local governance which is called to contribute to the competition under the conditions national and European integration and synergy.

In this respect, scientific research is an opportunity to illustrate the possibility of strengthening and consolidation in the centralization-decentralization relationship, showing **the place of the territorial departments in governance** through territorial reorganization.

The state and its specific areas faced with the renewed challenges imposed an increased responsibility for their solution. Thus, it becomes **mandatory** to research and set up the principles, rules and effective regional and departmental solutions for a harmonized and

efficient reform regarding the **administrative-territorial reorganization of Romania.**

The relevance of the agri-food pillar is decisive for balancing food safety and security, leading to the specific contribution of all the regions (departments) and avoiding the food crisis. This undesired crisis may appear as a result of the negative synergies of todays' major problems such as: the acute lack of fertile agricultural land, uncontrolled deforestation, biodiversity degradation, drought and the lack of drinking water, demographic evolution etc. and all of these under the conditions of climate, economical, social and geo-political changes.

In this context, **the objectives of this research** are the evaluation and quantification of the actions aimed at the balanced and bio-harmonized reorganization of the territory, based on the natural and human resources for assuring food security and Romania's sustainable development.

All these through the existential "spring" of **food production** ("geo-eco-bio" with harmonization with the maximized performance of the agri-food system) and **the establishment of the principles** necessary for *the centralization-decentralization ratio* to highlight the structure and the territorial response to the ecological and demographical challenges, reducing the current imbalances among the counties of Romania through a new territorial model with more balanced regions from an economic point of view, and also regarding the population chance for a better, fair and ethical life quality throughout the country.

Current situation

In a thematic approach based on the main findings provided by the current state of the regionalization in Europe [44], the trends and perspectives lead to open questions about the future of the regions in the European landscape, and more broadly, the role of the national and sub-national authorities in shaping the continent. Hence, the concern regarding the administrative compatibility in the centralization-decentralization relationship along the axis: "national (departmental)-transnational-regional (Euro-regions) - continental (European)".

The status of regionalization and multi-level governance in the European countries represents a major concern of the EU and directly of the Assembly of the European Regions (ARE), especially in the idea of a more efficient use of the European financial funds.

In this context, as premises specific to Romania, a paradox can be noted, but also a series of disharmonies linked to the territorial administrative organization. These have serious socio-economic and political implications which require an immediate reform, because, as already stated, Romania is still organized at present according to an old model and with small adjustments for over 55 years (since 1968). It is noted, on the one hand, that, demographically, Romania has major problems (naturally decreasing population, unprecedented emigration in the last decades, the increasingly poor quality of education, especially through school dropouts etc, that require rebalancing solutions and providing opportunities. On the other hand, the problem is aggravated by the outdated territorial administrative organization with 41 counties, 103 municipalities, 2,862 communes, 216 cities (of which some are wrongly classified, some are in involution and some are even completely abandoned) [9].

It inevitably results in administrative management problems, with systemic effectiveness and economic efficiency strongly affected. In this respect we can mention the high number of "elected officials" in relationship with the population at different levels: country, regions, counties, cities, communes and also the irregularities in the administration of budget or European funds due to the lack of administrative reform, poor digitization and excessive politicization.

But, important and beneficial achievements in Romania regard a series of adjustment actions along the lines of "Rural Development and Regional Agriculture Policies". This happened in the context in which the country benefited from cohesion funds to support vulnerable agricultural areas within the sporadic territorial reorganization and rural development projects. In certain counties, such as in the region of Moldova and Muntenia, these funds were

directed to agri-food infrastructure (local markets, storage facilities, food processing centers) that would ensure a sustainable local market for small and medium producers.

But, analyzing Romania compared to the other European countries, it appears (perhaps a little exaggerated) as a poorly developed country, which requires a conceptual and methodological remedy, a situation in which the proposals to renew the territorial administrative organization become not only timely, but and of utmost urgency.

Literature review

This research on the process of territorial administrative reorganization regarding the agri-food sector is based on a large study of key publications on concerns, topics and policies from the last decades. They are approached both at the European level and also regard various regions or countries.

The main directions have been sustained by personalities and their publications, for example: „Agricultural policy, food policy, agri-food policy" [26]; „Spatial components, forms and geographical processes of identities" [8]; „Regions and Regionalism in Europe" [21]; „Feeding Humanity. Major problems of the world agriculture in the 21st century" [31]; „Food policy. Integration of health, environment and policy"[25]; „ The global food system. Concepts and methods, analyses and dynamics" [36]; „Reconnection of agriculture and food in the territories: dynamics and challenges" [24]; „How to promote healthy food within the intercommunities?" [2]; „The region: from identity to citizenship" [14]; „Local geopolitics – Territories, actors, conflicts" [39]; „Europe of the regions: what return?" [30].

For Romania, a benchmark can be France, which is relatively similar in terms of agri-food sector, a country which has also carried out territorial administrative reforms taking into account this branch of basic economic activity directly related to resources.

Thus, **the French Model** has managed to effectively support the agri-food sector through administrative-territorial organization. This demonstrates how territorial organization can assure a sustainable, equitable and adapted agri-food system to the local needs, which allow regions to promote their agricultural specificity and culture. Among the publications which analyzed the French model and with applicability for Romania could be mentioned: „Geohistory of regionalization in France" [28]; „Territoriality of the French food policy: the vision of the public actors on governance PNNS" [18]; „The politicization of the peri-urban agricultural question in France: reference points" [4]; „White Chart regarding food governance" [20]; "A new map of the French regions", geoconfluences.ens-lyon.fr, Géoconfluences [7]; „Big Bang Territorial: regional reform under debate" [5].

Among other important publications regarding the reorganization of agri-food sector at the territorial level for various zones of France there are: The agricultural program for Grenoble [1],

The referendum on the territorial collectivity [22, 29], Geopolitics of Alsace [23], agrarian territory of Stephanoise [38], When France cried Alsace-Lorraine [40], Alsace atlas [43], Innovations traditionnelles dans le système alimentaire francilien [41].

Other researchers studied the territorial reorganization in relationship with the short supply chains and the peri-urban and urban agriculture development: collective practices for direct sales [3], food for urban societies [6], spatial components, forms and geographical processes of identities [10], the figures of the emergent city [12], agrarian policy of Lyon [11], from peri-urban to urban agriculture [13], short supply chains [27], peri-urban agriculture Lyon [32], rethinking the supply dimension, closer to "plate" [33, 35], peri-urban agriculture and decentralization [37, 42].

MATERIALS AND METHODS

To attain the objectives of this research work**,** the data had to be collected from various official information sources, then the strategy of analyzing was established and also the work techniques based on statistical methods, multi-criterial analysis, pointing and weighting method.

For this study, the data have been provided by the National Institute of Statistics. Also, there

were used maps, legal and administrative documents.

A large range of specific indicators were used and calculated for making comparisons and the results were tabled and graphically illustrated.

The applied methodology quantifies the balance of the regions using objective indicators which express the contribution of various resources which sustain the perennial existence of the territorial organizational units foreseen, but also the life quality of the citizens in the proposed territorial structures.

Multi-criterial analysis/AMC [34], respectively the *pointing method* and *weighting method*.

The matrices of performance provide 3 stages:

(1) ***Pointing:*** a stage in which the expected consequences receive each one separately a number of points on a scale of the preference level for each option for each criterion;

(2) ***Weighing:*** the stage in which numerical weights are assigned to define, for each criterion, the relative estimates of the oscillations between the lower limit and the upper limit of the chosen scale;

(3) ***Quantification of indicators through the weighted arithmetic mean*** **(Mp)**, as follows: [45]:

$$Mp = \frac{a_1 \cdot p_1 + a_2 \cdot p_2 + \ldots + a_n \cdot p_n}{p_1 + p_2 + \ldots + p_n}$$

.....(1)

where:

$a_1, a_2, \ldots, a_n$ represent the numbers,

$p_1, p_2, \ldots, p_n$ represent the weights.

RESULTS AND DISCUSSIONS

The present territorial organization is based on the division of counties and comes from the reorganization in 1968, with minor changes over time, i.e. over half of century in which the Romanian society has evolved rapidly, needing a commensurate adaptation of the way of administering the country's area.

(A)Chalenges and diagnosis of the Romanian agri-food system

Romania' agri-food system has been facing various challenges during the last years being influenced by factors such as: climate changes, the global geo-political context and the EU agricultural policy and local policies. All these indicate the need of a better organization and performance in agriculture, and at the same time, the need to be directly and indirectly supported by ***reforms and a balanced territorial reorganization*** imposed by the raising of the potential for solving the mentioned challenges

Romania's agri-food system is characterized by multi-factorial causes and by a polivalent situation with considerable challenges, but also with important opportunities for medium and long term development.

This complexity shows that the solution requires a strategy based on the rethinking of the Romanian territorial organization. A short diagnosis and the challenges the agri-food system is facing indicate the solution of the problems in harmony at the central and territorial level, concerning:

- Agricultural production, in relation to the problems caused by drought and climate change, non sufficient irrigation systems, high potential for organic agriculture;

-Animal sector is required to solve meat and dairy products output, the African Swine Fever, the Plague of Small Ruminants, Avian Influenza etc.

-Agricultural policies established at the EU level and in Romania;

-The negative impact of the war in Ukraine regarding the invasion of the imports (cereals, poultry meat, eggs, honey etc) which imbalanced the domestic agri-food market and raise the prices disadvantaging the Romanian producers and consumers;

-The export corridors for Ukrainian cereals have disturbed the normal traffic on the roads and activity in the harbour of Constanza;

-The European subsidies and also the subsidies offered by the Romanian Government have been given per surface unit and not in accordance with the results and performance of the agricultural holdings, favouring only a few categories of units and marginalizing the largest number of farmers. This reflect the need of a reform of subsidies and passing to a new system based on results and performance.

-Digitization in agriculture is still at the beginning, involving first the large agricultural holdings which have financial resources;

-Food prices have exploded affecting the daily basket of the consumers and also inflation with its negative influence.
-The incapacity of agriculture to produce as much output to cover the domestic market, the self sufficiency rate being below 100% for many products, except cereals, oil seeds and honey.
-For this reason, imports of processed foods are higher and higher to cover the population needs, but affecting local producers.
-Also, the limited access to financing is another challenge.
-Export is a good alternative for improving the agri-food trade balance, but the higher and higher competition in the EU and international market oblige the Romanian exporters to supply more food products involving a larger gross value in order to get a higher price.
-Agro-tourism is an efficient alternative for increasing jobs and incomes in the rural localities and contribute to the sustainable development of local communities.
The agri-food and societal problems could be solved only by finding optimal solutions, including the bio-harmonization of the territorial organization of Romania based on the principle of *„centralization-decentralization".*
In Romania, there have been several territorial reform initiatives and projects with an emphasis on agri-food and rural development, but many of them have NOT been implemented on a large scale, remaining in the phase of proposals and pilot projects.

(B)Ethical and sustainable territorial reorganization

The afore mentioned actually support the idea of territorial food sovereignty which is based on the definition recognized in 2018 by the United Nations Declaration as *"the right of peoples to healthy and culturally appropriate food produced with sustainable methods, as well as the right of peoples to define their own agricultural and food systems".* Since then, this notion has been used in many senses, often reclaimed and diverted. When used by governments, for example, sovereignty now justifies all environmental and social regressions for the benefit of competitiveness in deregulated global markets.

In this research work ***the paradigm of the food sovereignty*** is approached as **an item expressed at the territory level and local community level,** starting from the fact that we intend to assure a harmonious reorganization of Romania's territory.
Based on the principles of bio-harmonism, we try to reconnect agriculture to local foods *for sustaining in a balanced manner* the new territorial departments proposed.
For each department (region) there were considered **5 levers to achieve food sovereignty:**
(a)Avoiding industrial agriculture's dependence on imports;
(b)Transition to food autonomy: diversification of production for local consumption and specificity;
(c) Re-analysing or existing free trade treaties and preserving the "global peasantry";
(d)Ensuring a decent income for farmers;
(e)Accelerating the transition to agro-ecological system to ensure long-term food sovereignty.
This needs to set up a new agri-food policy, which to promote the agri-ecological transition destined to guarantee the farmers' capacity to produce more and of higher quality products to satisfy consumers' requirements. To set up this new sustainable agri-food system, the local communities, citizens and farmers have to give their contribution with concrete and efficient solutions for a decentralized territorial organization at the regional level.
The model of territorial reorganization of Romania is based on the following principles:
-The principle of multi-level and multi-criteria territorial balance;
-The principle of harmonizing the diversity of resources;
-The principle of debureaucratization and optimization of the centralization-decentralization ratio;
-The principle of minimizing disadvantages and risks.
The hypothesis for carrying out **a balanced model, sustained by a comprehensive and integrative mechanism,** described as *„mechanism of bio-harmonization*" in "Theory of Bio-harmonism" [15].

The expected results anticipates that the research will provide clear data about **bio-harmonization** of life and society, ecosystems and anthropo-systems and its role in the balance, viability, yield and societal resilience through the administrative-territorial reorganization of Romania.

Criteria to approach the research for assuring a bio-harmony from a geographical, demographical, socio-economical and ecological point of view. According to [17], two criteria: natural and human capital must be taken into consideration for reoptimizing the territorial organization as follows:

(a)Natural capital regards: land surface and quality, agricultural land structure (arable, orchards, vineyards, pastures and meadows etc) and production potential, relief, forests, climate, environment health;

(b)Human capital regards: population size, demographic indicators (age and education structure), employment, labour productivity, income, purchasing power, life expectancy.

Natural potential capital of the considered region ***was evaluated using 4 criteria***: land surface and quality, relief, forests and agricultural potential, and within these 4 criteria, there are 6 componets whose weight is differently depending on the importance in the developmnet of the region. All these aspects are described in Table 1.

Table 1. Weighted criteria of the simplified and optimized model of territorial organization

TOTAL LAND		**RELIEF**		**FORESTS**		**AGRI-FOOD POTENTIAL**	
Surface (km^2)	***Points (a)***	***Categories***	***Points (a)***	***Share in the total surface of the territorial unit***	***Points (a)***	***Category***	***Points (a)***
Up to 17,500	1	*Mountains*	1	< 10 %	1	*Total utilized agricultural area -UAA*	**2**
17,501-20,000	2	*Hills*	1	10-20 %	2	*Arable land*	**4**
20,001-22,500	3	*Highlands*	1	20-30 %	3	*Family gardens*	**1**
22,501-25,000	4	*Plain*	1	30-40 %	4	*Pastures and meadows*	**3**
25,001-27,500	5	*Wet areas*	1	40-50 %	5	*Permanent crops (ex.vineyards, orchards etc)*	**2**
27,501-30,000	6	*The Danube Delta*	1	> 50 %	6	*Forest cultures (tree nurseries)*	**x**

Source: Own calculation.

The described ones were applied, namely the established principles. The working hypotheses and the mechanisms for implementing the predetermined objectives were fixed, so that it was possible to process the primary data collected on this topic [19, 46]. Although not all initiatives are part of an extensive administrative reform, they contribute to the better integration of agriculture in territorial planning and rural development. All these can constitute benchmark elements for the directions pursued and for the quantification of some indicators.

Based on this consideration, the reference items were selected and analyzed both for the current counties and for the proposed regions (departments). In the end, **the maximum limits** regarding polarization (the gap) can be observed, finding along the research analyzes that: in the current administrative organization, the maximum gap is **very pronounced** between the counties of Cluj and Tulcea, and in the territorial reorganization that we propose it is found **much attenuated** between the departments of Transilvania Nord and Crisana.

Evaluation of the gap by grouping and establishing the elements concerning the contribution level of the proposed departments

The new model aims a territorial administrative reform which imply the creation of new territorial structures named: regions, departments, etc, which to be administrated by elected authorities with claire functions and which could also have the task to manage the European funds. This imposes a Conceptual Renewal regarding the administrative structure of Romania's territory, the new model involving ***items, principles, mechanisms of the bio-harminist ideology*** [15, 16], meaning a socio-economic and also a psichological "unlocking".

Item 1. A corect and ethical involvement of the Government in the implemantation of the EU rules in relationship with the concrete conditions of Romania.

Item 2. Imposing meritocracy by objective criteria and a high profesional level for absorbing the EU funds.

Item 3.Sustaining financial mechanisms and banks or programmes specialized in the development of territorial structures based on decentralization.

Item 4. The juridical rethinking of the public administration by coherent legislative changes.

Item 5. Digitization and education focused on organizational culture**.**

Item 6. Depolitization of administration and an increased transparence in the maangement of national and EU financial funds.

The actual territorial organization in Romania has a series of imbalances, coming from its history.

Fig.1. Romania's actual territorial-administrative organization

Source: https://www.google.com/, Accessed on October 25, 2024 [46].

On January 2nd, 1919, the Dirigent Council of Transilvania decided the administartive organization of the territories united with Romania.

Since 1968, Romania has 41 counties, plus the municipality of Bucharest, which has a special status of an administrative-territorial unit (Figure 1).

Along the time, major imbalances have appeared among the counties [46]. Just an exemple is enough to explain a major unbalance. In 2019, the GDP variation among the counties accounted for Lei 763,774, without taking into account Bucharest + Ilfov county GDP (Table 2).

Table 2 shows that the differences among the counties are very high, expressed synthetically by means of GDP. The gap among counties ranges between - 110 % and + 110 %. Taking into account these huge differences between the counties, it is normal to think that the financial flow and investments are deeply affected, and also the living standard, and all these justify the need of a new territorial reorganization.

Despite it does not fit to Romania's Constitution to approach the territorial organization based on racial, ethnic, religious, gender, sexual orientation etc, we mention that it is compulsory to be **a balanced principle regarding all these**.

Taking into account **the ethnic structure,** bio-harmonization could be discussed in the counties with a high share of national minorities like Harghita and Covasna, where the Romanian citizens of Hungarian ethnicity have a very high share compared to the Romanian citizens.

The solution of territorial-administrative reorganization given in our research indicate a balanced ethnicity by creating the Department "Carpatica" where the ethnic share decrease from 80% for minority population to almost 50% (Table 3).

Figure 2 present the imbalance among two counties with extreme gap value, Cluj and Tulcea, based on the multi-criterial analysis..

Table 2. An example of imbalances in the actual territorial organization of Romania (County GDP in 2019)

Counties with "extreme GDP"	GDP (Lei Million)	Variation around the avergae gap	Extreme GDP versus gdp average
Cluj	50,421	264 %	264 - 154 = + 110 %
Tulcea	8,120	43 %	43 - 154 = - 110 %
GDP average per county (Bucharest excluded)	763,774 Thousand Lei: 40 counties = 19,094.35 (Average value as reference term of 100 %, versus which are compared GDP values registered by all the other counties	100 % **Gap average: (264 +43) / 2 = cca. 154 %**	High variation around the avergae gap, between **- 110 % and + 110 % !!**

Source: Own calculation.

Table 3. The balanced and synergic ethnic and religious componence of "Carpatica" Department (including the counties Brasov, Covasna, Harghita and Mures)

ETHNICITY	BRAŞOV	COVASNA	HARGHITA	MUREŞ	AVERAGE BY DEPARTMENT
Romanians	87.3	23.0	16.0	53.3	45.0
Hungarians	8.7	71.8	82.9	39.3	50.7
Germans	0.8	0	0	0	1.0
Other ethnicity (Roma included)	3.3	5.1	1.2	7.4	3.3

Source: Own calculation.

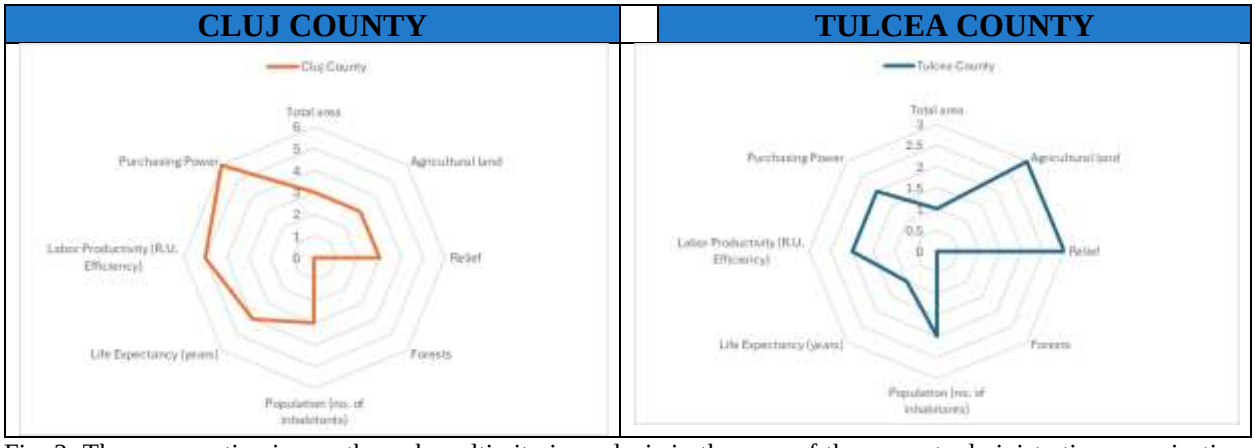

Fig. 2. The comparative image through multicriteria analysis in the case of the current administrative organization, illustrating major imbalances between extreme territorial structures
Source: Own calculations.

The variants of the resulting solutions allowed to chose the **Model of administrative reorganization with 12 territorial structures,** including: 11 Departments and the Municipality of Bucharest, as described in Fig. 3.

The arguments which sustain our model proposal are shown in Table 4, where it is made a comparison between the 11 new regions and separately, Bucharest, which had a different evolution based on the principles of a great metropolis. Within the calculation stages, a series of intermediary tables have been made. The most important is the **Table reflecting the agri-food potential.**

Cumulating the surfaces of arable land, family gardens, pastures and meadows, permanent crops (orchards, vineyards etc) for each new established region, it was possible to determine the share of the potential for feeding the population depending on the total surface of the region, and the obtained percentages have been divided by 6 groups, as presented in the cassettes from Table 4.

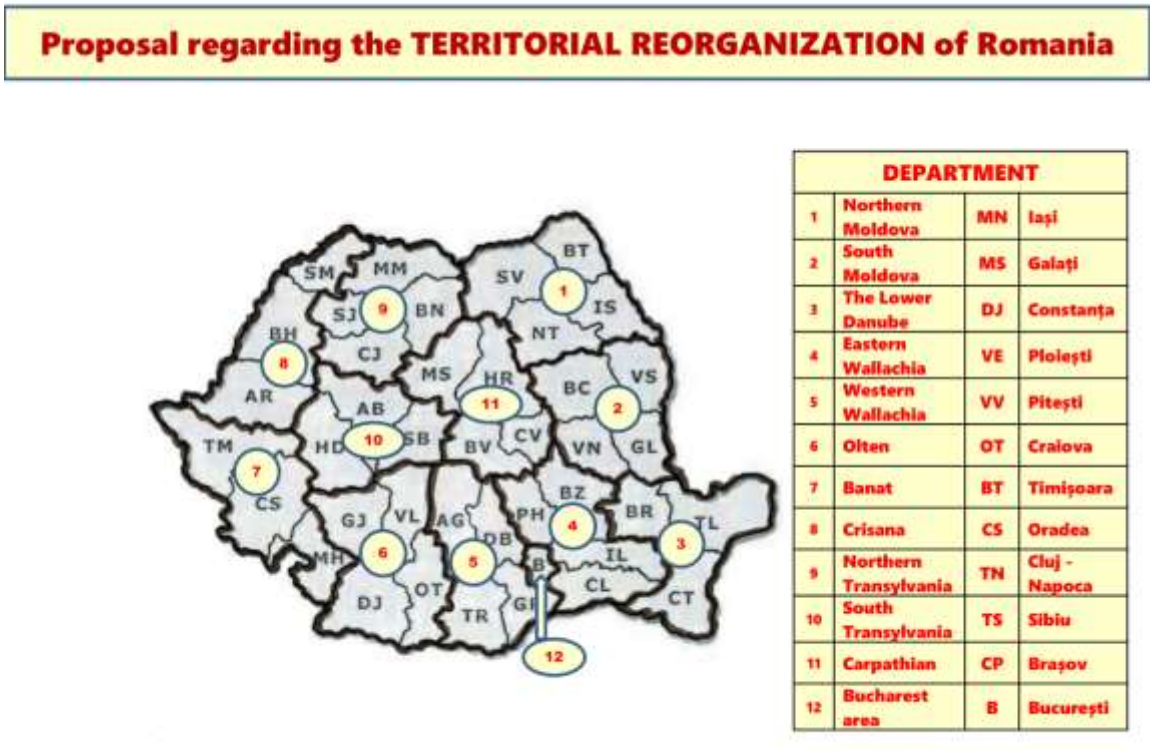

Fig. 3. Proposed Model of territorial administrative reorganization of Romania, 2024
Source: Own conception.

Table 4. Cassettes with the calculations reflecting the share in the total agricultural land of each group
group

Agricultural land % of the total	Below 40	40-49	50-59	60-69	70-79	Over 80
Group:	1	2	3	4	5	6
No. regions in the proposed model	-	3	4	3	-	1

Source: Own calculations.

Human capital taken into consideration in this MODEL

For analyzing the potential of human resource capital in the 11 regions, there were taken into consideration 3 criteria: population density (number inhabitants per km^2), productivity in terms of GDP per region and inhabitant and the labour efficiency as contribution to the territory (GDP region/km^2), and for the life quality, life expectancy and purchasing power. The obtained values allowed to continue the calculations by applying the weighting method, resulting 6 levels as shown in Table 5. Table 6 centralizes and groups the criteria depending on the "pointing" and " weighting" stages.

Applying the formula of the arithmetic weighted mean, we calculated with the aid of the numbers from "Pointing" (a_1, a_2, ..., a_n) and with the fixed weights (p_1, p_2, ..., p_n), the averages for the main groups of criteria connected to life quality: natural capital, human capital (Table 7 and 8).

Table 7 presents the quantification of natural capital of the new departments and also shows how the arithmetic weighted mean was determined.

Table 8 shows quantification of human capital of the new departments and also how the arithmetic weighted mean was calculated for which of the new administrative units in the territory.

Table 5. The results for the Model based on the population density, GDP/inhabitant, life expectancy and purchasing power

Population (Mil. capita)	**1.00 - 1.99**	**1.20 - 1.39**	**1.40 - 1.59**	**1.60-1.79**	**1.80 - 1.99**	**Over 2.00**
Group	1	2	3	4	5	6

GDP (Mil. Lei)	**Below 60**	**60-64**	**65-69**	**70-74**	**75-79**	**Over 80**
Group:	1	2	3	4	5	6

Life expectancy for male	**69.29-70.55**	**70.56-71.38**	**71.39-72.25**	**72.26-73.60**	**73.61-75.06**
Group average	70	71	72	73	74
Life expectancy for female	**77.02-77.78**	**77.79-78.49**	**78.50-79.08**	**79.09-79.82**	**79.83-80.76**
Group average	77.5	78	78.5	79	80

Longevity (years	**74.50 -74.74**	**74.75 -74.99**	**75.00 -75.24**	**75.25 -75.49**	**75.50-75.74**	**Over 75**
Group	1	2	3	4	5	6

Index of Purchasing Power (Methods Gfk, 2018)	**sub 75**	**75 – 79**	**80 - 84**	**85 - 89**	**90 - 94**	**95 and over**
Group:	1	2	3	4	5	6

Source: Own calculations.

Table 6. „Pointing" („a") and weighting" („p") of the criteria of the basic resources for quantifying the weighted average

Department		**NATURAL CAPITAL**				**HUMAN CAPITAL**			
		Total surface	Agricultural land	Relief	Forests	Population (no. inhabitants)	Life expectancy (years)	Efficiency of the activity R.U.	Puchasing power
	p	Weight (p) 1	Weight (p) 2	Weight (p) 1	Weight (p) 2	Weight (p) 1	Weight (p) 2	Weight (p) 3	Weight (p) 2
		$p_1 + p_2 + p_3 + p_4 = 1+2+1+2 = 6$				$p_1 + p_2 + p_3 + p_4 = 8$			
	a	Points (a) Total surface	Points (a) % agric. area of total surface	Points (a) Presence number of relief forms	Points (a)	Points (a)	Points (a)	Points (a)	Points (a)
Moldova North		3	3	4	3.75	6	3	3	2
Moldova South		2	3	5	3.25	5	2	2	3
Dunărea de Jos		2	4	4	1.67	2	2	3	4
Valahia East		1	6	4	2.25	5	2	5	3
Valahia West		2	4	5	2.75	4	2	3	3
Oltenia		3	3	5	3.50	5	4	2	3
Banat		2	3	4	3.67	2	3	3	5
Crișana		1	4	4	2.67	2	1	2	6
Transilvania North		2	2	3	3.75	4	4	5	6
Transilvania South		1	2	3	4.33	1	5	3	6
Carpatica		3	2	3	4.25	3	5	3	5

Source: Own calculations.

Table 7. Quantification of natural capital of the new departments

DEPARTMENT	Calculus of the arithmetic weighted mean	M_p
Moldova North	M_p = (3 x 1+ 3 x 2 + 4 x 1 + 3.75 x 2) / 1 + 2 + 1 + 2 = 20.50 / 6	**3.42**
Moldova South	M_p = (2 x 1+ 3 x 2E+ 5 x 1 + 3.25 x 2) / 1 + 2 + 1 + 2 = 19.50 / 6	**3.25**
Dunărea de Jos	M_p = (2 x 1+ 4 x 2 + 4 x 1 + 1.67 x 2) / 1 + 2 + 1 + 2 = 17.34 / 6	**2.89**
Valahia East	M_p = (1 x 1+ 6 x 2 + 4 x 1 + 2.25 x 2) / 1 + 2 + 1 + 2 = 21.50 / 6	**3.58**
Valahia West	M_p = (2 x 1+ 4 x 2 + 5 x 1 + 2.75 x 2) / 1 + 2 + 1 + 2 = 20.50 / 6	**3.42**
Oltenia	M_p = (3 x 1+ 3 x 2 + 5 x 1 + 3.50 x 2) / 1 + 2 + 1 + 2 = 21.00 / 6	**3.50**
Banat	M_p = (2 x 1+ 3 x 2 + 4 x 1 + 3.67 x 2) / 1 + 2 + 1 + 2 = 19.34 / 6	**3.22**
Crișana	M_p = (1 x 1+ 4 x 2 + 4 x 1 + 2.67 x 2) / 1 + 2 + 1 + 2 = 18.34 / 6	**3.06**
Transilvania North	M_p = (2 x 1+ 2 x 2 + 3 x 1 + 3.75 x 2) / 1 + 2 + 1 + 2 = 16.50 / 6	**2.75**
Transilvania South	M_p = (1 x 1+ 2 x 2 + 3 x 1 + 4.33 x 2) / 1 + 2 + 1 + 2 = 16.66 / 6	**2.78**
Carpatica	M_p = (3 x 1+ 2 x 2 + 3 x 1 + 4.25 x 2) / 1 + 2 + 1 + 2 = 18.50 / 6	**3.08**

Source: Own calculations.

Table 8. Quantification of human capital of the new departments

REGION	Calculus of the arithmetic weighted mean	M_p
Moldova North	M_p = (6 x 1+ 3 x 2 + 3 x 3 + 2 x 2) / 1 + 2 + 3 + 2 = 25 / 8	**3.13**
Moldova Soith	M_p = (5 x 1+ 2 x 2 + 2 x 3 + 3 x 2) / 1 + 2 + 3 + 2 = 21 / 8	**2.63**
Dunărea de Jos	M_p = (2 x 1+ 2 x 2 + 3 x 3 + 4 x 2) / 1 + 2 + 3 + 2 = 23 / 8	**2.88**
Valahia East	M_p = (5 x 1+ 2 x 2 + 5 x 3 + 3 x 2) / 1 + 2 + 3 + 2 = 30 / 8	**3.75**
Valahia West	M_p = (4 x 1+ 2 x 2 + 3 x 3 + 3 x 2) / 1 + 2 + 3 + 2 = 23 / 8	**2.88**
Oltenia	M_p = (5 x 1+ 4 x 2 + 2 x 3 + 3 x 2) / 1 + 2 + 3 + 2 = 25 / 8	**3.13**
Banat	M_p = (2 x 1+ 3 x 2 + 3 x 3 + 5 x 2) / 1 + 2 + 3 + 2 = 28 / 8	**3.50**
Crișana	M_p = (2 x 1+ 1 x 2 + 2 x 3 + 6 x 2) / 1 + 2 + 3 + 2 = 22 / 8	**2.75**
Transilvania North	M_p = (4 x 1+ 4 x 2 + 5 x 3 + 6 x 2) / 1 + 2 + 3 + 2 = 39 / 8	**4.88**
Transilvania South	M_p = (1 x 1+ 5 x 2 + 3 x 3 + 6 x 2) / 1 + 2 + 3 + 2 = 32 / 8	**4.00**
Carpatica	M_p = (3 x 1+ 5 x 2 + 3 x 3 + 5 x 2) / 1 + 2 + 3 + 2 = 32 / 8	**4.00**

Source: Own calculations.

Table 9. Integrator Index of bio-harmonization of the territorial unit according to the proposed Model of organization for the territorial unit

Department	Potential polivalent of the new departments			Variation around the gap average	
	Natural Capital	Human Capital	Polivalent Sum	Variation versus the average of the departments (6.59 p = 100%)	Variation versus the gap average (102 p.)
0	1	2	1+2	%	%
Moldova North	3.42	3.13	6.55	99.39	99.39 - 102 = - 2.61
Moldova South	3.25	2.63	5.88	89.23	89.23 - 102 = - 12.77
Dunărea de Jos	2.89	2.88	5.77	87.56	87.56 - 102 = - 14.44
Valahia East	3.58	3.75	7.33	111.23	111.23 - 102 = + 9.23
Valahia West	3.42	2.88	6.30	95.60	95.60 - 102 = - 6.40
Oltenia	3.50	3.13	6.63	100.61	100.61 - 102 = - 1.39
Banat	3.22	3.50	6.72	101.97	101.97 - 102 = - 0.03
Crișana	3.06	2.75	5.81	88.16	88.16 - 102 = - 13.84
Transilvania North	2.75	4.88	7.63	115.78	115.78- 102 = + 13.78
Transilvania South	2.78	4.00	6.78	102.88	102.88 - 102 = + 0.88
Carpatica	3.08	4.00	7.08	107.44	107.44 - 102 = + 5.44
Total polivalent evaluation	x	x	72.48	x	x
Average potential per department	x	x	6.59	x	x
Extreme values	2.75 to 3.58	2.63 to 4.88	5.77 to 7.63	88.16 to 115.78	x
Gap variation	-/+ 13 %	-/+ 30 %	X		-14 % ... + 14%

Source: Own calculations.

Once the basic values are quantified regarding the natural capital and human capital of the new departments, these values could be processed based on the principles of bio-harmonization in order to assess the balance of the resources among the new regions (Table 9 and 10).

Figure 4 presents the rebalance and bio-harmonization in the territorial administrative organization of Romania using the multi-criteria analysis of the extreme departments of the gap.

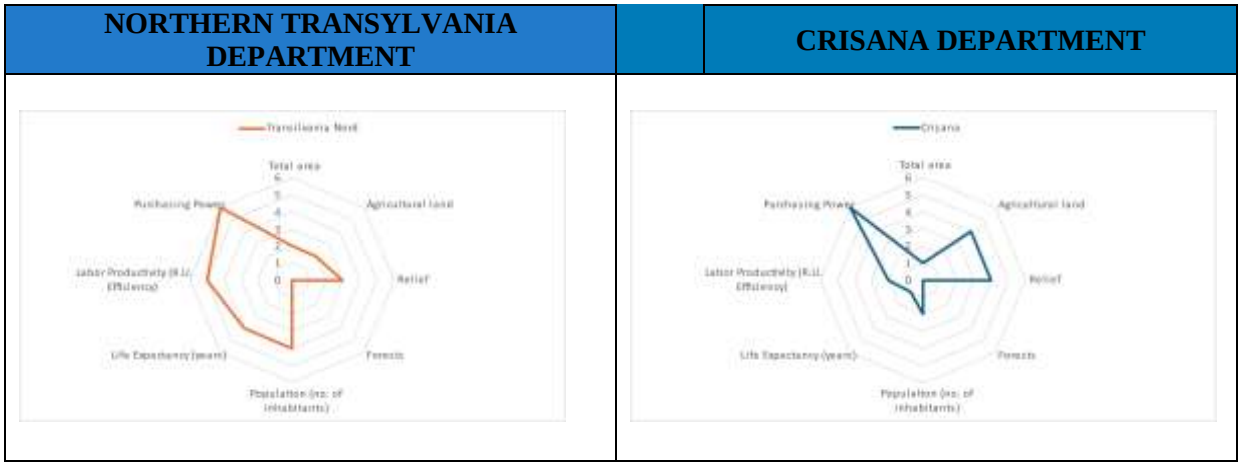

Fig. 4. The comparative image through multicriteria analysis in the case of administrative reorganization, illustrating a substantial balancing between extreme territorial structures.
Source: Own calculations.

Making a comparison between Table 2 and 8, in other words at the beginning and at the end of the analysis, we noticed that the gap between the actual administrative structures and the new structures proposed in our MODEL is significant smaller, which reflects a correct balance between the departments proposed in this study (Table 10).

Table 10. The degree of balance and territorial bio-harmonization by reducing the differences among the departmental proposed structures

Territorial administrative organization	***-GAP VARIATION -***			
	NATURAL CAPITAL	**HUMAN CAPITAL**	**GAP OF THE MODEL**	**Reduction of polarization**
ACTUAL MODEL (Counties)	x	x	-/+ 110 %	110 : 14 = 7.86
PROPOSED MODEL (Departments)	-/+ 13 %	-/+ 30 %	-/+ 14 %	***Conclusion:*** ***In the new model, the territorial situation is balanced almost 8 times!***

Source: Own calculations.

CONCLUSIONS

The conducted research looking to establish a new territorial administrative organization based on a balanced MODEL regarding natural capital and human capital have led to the following main conclusions:

-It is necessary the reorganization of Romania's territory in order to solve the actual polarization among the counties. Some imbalances are major and regard: a double surface (8,700 km^2 versus 3,700 km^2) and 3.5 times concerning the population (772,000 inhabitants versus 211,000), and the differences in terms of GDP are even of 5 times (50,000 Million Lei versus 9,500 Million Lei). In addition, between Bucharest and the counties, the county average is 15 times smaller than the capital mean.

-The management of the internal and European funds in legal conditions could allow the proposed model of territorial organization, which provides the creation of new territorial units named: departments, lands, regions etc,

the most frequently utilized term being *„administrative departments with a large basis of decentralization",* respectively units with elected leaders and claire functions (managerial, economic, financial, traditional/cultural). In this respect we nominate: Moldova North (MN with the capital Iași), Moldova South (MS with the capital Galați), Dunărea de Jos (DJ with the capital Constanța), Valahia East (VE with the capital Ploiești), Valahia West (VV with the capital Pitești), Oltenia (OT with the capital Craiova), Banat (BT with the capital Timișoara), Crișana (CS with the capital Oradea), Transilvania North (TN with the capital Cluj-Napoca), Transilvania South (TS with the capital Sibiu), Carpatica (CP with the capital Brașov) and Zona București (B).

-The territorial structures of the proposed Model, named Departments are well balanced by polivalent harmonized criteria, as follows:

- *like surface:* between about 19,000 - 25,000 km^2 with an average of about 22,000 km^2;
-*like population:* between 1.1 - 2.3 million inhabitants per region, with an average of about 1.7 million inhabitants/region;
-*like density:* between 60 -90 inhabitants/km^2, with a national average of 82.50 inhabitants/km^2;
- *like regional GDP*: between 58 Billion - 87 Billion with an average of 72 Billion per region (except Bucharest zone with 276 Billion.

-The proposed Model for territorial organization, being based on objective criteria and bio-harmonism mechanisms (integration, efficiency, balancing, chance equity) carried out an attenuation of the imbalances between the actual territorial structures. The proposed Model reduces the number of 41 counties plus the Municipality of Bucharest to 11 departments plus Bucharest, assuring a much better balance among the new administrative department structures by a significant reduction of the polarization of the societal development and regarding life quality. The results proved that the reduction is 8 times, from a difference of +/- 110 % to a much smaller difference of +/- 14 %, without taking into account Bucharest area, which as a metropolis has its own rules and different criteria for a special development.

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