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RESEARCH ARTICLE

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Effects and Contributions of Agri-Environmental and Measures to the Development of Rural Areas in Romania

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Abstract:

The rural area might be advantageous to the South-East region. 40.4% of the working people in the region works in agriculture, which contributes significantly to the region's economy. The majority of agricultural land is owned by the private sector, and it makes about 65% of the region's total area. With 40.3% of the nation's total wine-growing land, the South-East region leads the nation in vineyard area. If European funding for agriculture are taken in and used effectively, there are key components in the area that can result in a favorable evolution with regard to rural development. Using data and statistics from national and international statistics organizations, the study offers a comprehensive examination of the South East region's current state. The paper's goal is to assess how the South East area of Romania has changed as a result of European agricultural funding. In order to predict future development, it is beneficial to comprehend the causes of present evolution.

Keywords - agriculture, rural development, agri-food, climate

I. INTRODUCTION

The idea of sustainable development emerged when environmental issues were at the forefront of political discussions, making the notion of sustainable development a relatively new concept. was determined It to environmental issues on a global scale by taking collective action based on a suitable international framework. This action framework, which includes required or elective legal actions, is evolving dynamically. The Stockholm Conference concerning the Human Environment in 1972 served the first worldwide gathering. Area Sustainable Lifestyle is one of the eleven (11), theme areas for Education for Sustainable Development that the United Nations Educational Organization (UNESCO) has identified. This theme area takes into account how the global economy is impacted by production and consumption processes, and how people' decisions as consumers can have significant repercussions. From a social, economic, and environmental perspective, adopting

sustainable attitudes and implementing the concepts of sustainable development in day-to-day activities may have a significant influence both locally and globally, both now and in the future. The process of changing how people engage with the world and teaching customers about the goods they purchase is known as education for sustainable development [1].

An even more recent idea is rural sustainable development, which entails local and even remote rural settlement-level initiatives. The term "rural development" describes fairly remote villages and rural communities with the goal of enhancing people's quality of life via innovation development. Sustainable development emphasizes social justice, environmental stewardship, and prudent resource usage. The aforementioned components are combined in sustainable rural development through actions that are beneficial to both the environment and the people living in rural communities [1].

II. ROMANIA'S AGRI-FOOD AND RURAL DEVELOPMENT STRATEGY

It was impossible to envision and, primarily, to carry out a long-term agricultural project in Romania that was comparable to those in the majority of (West) European countries due to four significant changes (four fractures of the Romanian agricultural structures in just one century can be considered): the great agrarian reform in 1921, the agrarian reform in 1949, agriculture collectivization in 1949-1962, and the effects of the Land Law of 1991 and its related laws. The national agricultural system became unstable as a result of the significant system changes that followed, and more importantly, it lost continuity, stability, sustainability. A fluid, non-structured, performing, non-competitive, primarily subsistence was created by the effects of agriculture agricultural policies (reforms, restructuring, adjustment), which implemented were inconsistently and without continuity after 1989. This condition was accompanied by a shift from the large farming units (state farms, cooperative farms), which were typical of Eastern European socialism, to the large farming units (associations, companies) in an early stage of capitalism with a total area of more than 5 million hectares into ownership [2].

A chronic lack of funding and production factor allocation and utilization, along with poor management of the majority of agricultural holdings, agricultural commercial companies, and agro-processing SMEs, are among the causes of significant deficiencies in rural development, technical, and economic non-performance in agriculture. There are also significant shortcomings in the management of the chains that take over, store, process, and market the agrifood products (agricultural market operation). Low agricultural yields compared to those in the EU are a result of capital scarcity: 40-45% of average cereal yields, 35–40% of the value of primary agricultural output (800–900 €/ha in Romania versus 1800–2000 €/ha in the EU), and only 1 € of processed food production from 1 € of primary agricultural production, as opposed to 2.5–3 € in the EU.

Analyzing Romania's agri-food consumption statistics shows drawbacks for the nation's overall economic balance as well as for agriculture from an economic and social perspective [2]:

- the share of food expenses in total population's expenses (about 40–45%) is maintained at extremely high levels, with values twice as high compared to the EU-25 average and almost 2.8–3 times higher compared to EU-15 average;
- although the share of food self-consumption was significantly down, from 64.9% in the year 2000, to 41% in the year 2007, it is still the highest in EU-27, three times higher compared to the EU-15 Member States;
- in absolute value, the food consumption per capita in Romania is at the minimum level of subsistence, with 9.41 RON/day (about $2.24 \in \text{/day}$) in 2009, much under the daily consumption (by about 2.2-2.5 times lower) of the average consumption level of the EU countries;
- the food expenses from imports have a too high share, unacceptable for an agricultural country like Romania (17.9% of the food consumption and 34.1% of the cash food expenses).

87% of Romania's 238 000 km² land area is rural. Forestland makes about 30% of the overall area, while agricultural land makes up 57%. In 2012, the unemployment rate was 7%. Nearly 20 million people reside there, with 45% of them residing in rural regions. With 6.6% of GDP coming from agriculture, Romania continues to have one of the largest agricultural shares in the EU—more than three times the average of 1.7% [3].

Romania's rural landscape has changed significantly over the years and is now of great importance given the sizeable population that resides there. Romania's entry into the European Union's institutions brought attention to the changes in the countryside, and a number of targeted programs and support initiatives were implemented to help the rural environment. The lack of natural resources that may draw a lot of tourists makes it difficult to promote non-agricultural industries like rural tourism in Romania,

particularly in lowland areas where agriculture is the primary industry. Inadequate transportation infrastructure makes it challenging to reach these locations, even when these resources are available and have the potential to draw tourists [3].

The presence of regionally specialized crafts and agricultural practices are closely linked to the hamlet. Romania's two National Rural Development Programs, implemented from 2007 to 2013 and from 2014 to 2020, significantly raised the standard of rural communities [3].

III. CAP PLAN 2023-2027

The new Common Agricultural Policy (CAP) 2023-2027 transition period began in 2021. This phase involves implementing a National Strategic Plan, which is presently being produced at the MADR level based on the EU legislative package [4].

Measure 10 seeks to encourage farmers to voluntarily adopt farming practices that ensure the preservation of rural areas' environmental value, the preservation of particular farmland habitats that are important for wildlife species, the sustainable use of natural resources, and the preservation of traditional landscapes, as stated in Article 28 of Regulation (EU) No 1305/2013 as amended. Provisions common to the Measure 10 packages: Farmers must engage in a "agricultural activity" as defined by national law and meet the eligibility requirements, particular requirements, fundamental requirements pertinent to package as outlined in measure 10 fiche of the RNPD 2014-2020 in order to be eligible for payments under this measure. The compensation payment, which is given after commitments, is provided annually as a set amount per unit area (ha) or per UVM (for package 8 of Measure 10 computed for mature pure-bred breeding females) [4].

The updated CAP 2023–2027 policy places a high priority on performance and outcomes. The Common Agricultural Policy (CAP) reform agreement was formally ratified on December 2,

2021. A more equitable, environmentally friendly, and performance-based CAP is made possible by the new regulations, which went into effect on January 1, 2023. They aim to provide a sustainable future for farmers in Europe, offer more focused assistance to smaller farms, and grant EU nations more latitude to modify policies in response to regional circumstances [5].

The following are the findings of a SWOT analysis that was conducted with regard to improving market orientation and short- and long-term agricultural competitiveness, including a greater emphasis on research, technology, and digitization [5]:

Table 1. SWOT analysis regarding the improving market orientation and short/long-term agricultural competitiveness

Strenghts						
1. Agricultural crop and						
livestock production, with a						
high share in favor of crop						
production (1/3 of total						
agricultural production is crop						
production) 2. Significant						
agricultural area (12.502						
million ha) with a high share of						
arable land (63.47%), which						
leads to the supply of a diverse						
range of primary agricultural						
products						

- 3. Total factor productivity in agriculture has been on an upward trend but remains below the EU average
- 4. Agricultural raw materials, in particular fall cereals, maize, maize, sunflower, rapeseed, eggs, sheep meat, honey, in sufficient quantities to cover the domestic market demand
- 5. Increasing the degree of technical equipment of farms, especially large farms (2010-2019the number agricultural tractors increased by 18.6%, the number of tractor plows by 12.7%, self-propelled combine harvesters by 8.49%, mechanical seed drills by 6.58%), but despite this, physical and especially moral wear and tear is still very high 6. In the wine sector, there has been an upward trend in wine production and restructured

- Weaknesses
 1. Low labor productivity in agriculture (4 times lower than
- the EU 28 average)
 2. Low level of gross fixed capital formation in agriculture (50% of EU 28 average)
- 3. High share of small holdings, associated with a significant share of households practicing household/extensive farming systems (2,480,770 farms hold up to 2 ha, 660,0000 holdings hold between 2-5 ha)
- 4. Low yields per ha compared to the EU (e.g. 5-year average maize yield was 5.2 tons/ha, about 68% of the EU 28 yield/ha; wheat yield was 4.2 tons/ha, about 73% of the EU 28 yield/ha; barley and barley-oats average yield 2013-2018 was 3.81 t/ha, about 78% of the EU yield)
- 5. A significant decrease in the number of pigs (from 5,180,173 in 2013 to 3,750,400 in 2020) and a slight decrease in the number of cattle (from 2,022,408 in 2013 to 1,910,900 in 2020) and poultry (from 79,440,251 in 2013 to 70,501,200 in 2020)
- 6. Low yields, far below the real potential, especially in the livestock sector (average yields below 11 l/head/cow/day in the cattle sector), but also in the vegetable sector (vegetablesfruits, e.g. total vegetable

areas in recent years, thanks to investments with European funding

- 7. Increasing maturity of farms in project management due to European funding programs
- 8. Romania occupies second place in the EU in honey production, however, there is a need for investment in increasing quality, modernization, marketing and combating bee diseases.
- production recorded 3.802 million tons in 2014 falling to 3.358 million tons in 2016 and 3.797 million tons in 2018)
- 7. Reduced capacity to provide the necessary biological material to populate pig and poultry farms
- 8. Largely degraded, inefficient and conceptually worn out irrigation systems
- 9. Extensive agricultural areas affected by soil degradation phenomena through erosion, landslides, desertification, affecting agricultural production and thus the competitiveness of farms

Opportunities

- 1. Significant EU support to contribute to the modernization restructuring agricultural sector to improve productivity, competitiveness and sustainability, including for economy circular and innovation in agriculture and food industry, precision digitalization, farming, financial instruments
- 2. Growth potential of small and medium sized farms to supply the market with indigenous, high value added products,
- 3. Potential for balancing the trade balance based on high value-added products due to growing domestic and foreign demand for agricultural products
- 4. Availability of funds to provide coupled support to sectors in difficulty to improve competitiveness, sustainability and quality
- 5. Involvement of associations in adapting crop plans to market requirements and minimum requirements for compliance with GAEC
- 6. Access to new equipment and technologies for precision farming
- 7. Increased consumer interest in healthy food with low environmental impact
- 8. Creating partnerships for innovation, knowledge bases and new methods in agriculture 9. Existence of funding for the

Threats

- 1. Rising energy and input prices
 2. Intensification of animal health problems and increased use of drugs in animal husbandry technologies and increased risks of transboundary diseases, which pose risks from a population health and food safety perspective
 3. Continued underdevelopment of basic infrastructure with negative effects on investments in the agri-food sector
- 4. Lack of a real system for the RDI sector that is closer to the production and valorization system
- 5. The prohibition of certain plant varieties and hybrids created by biotechnology (soy, maize, oilseed rape, potato)
- 6. Shortage of skilled labor
- 7. Single market volatility and the global economic situation
- 8. Reluctance towards association
 9. Massive depopulation of rural areas with a direct impact on the abandonment of agricultural activities and the agricultural labor force;
- 10. Emergence of pandemics and continuing global instability generated by the Russian invasion 11. Increasing competitiveness of non-EU products

development of cooperatives	
and producer groups in order to	
increase competitiveness,	
balance bargaining power in	
the agri-food chain and combat	
unfair trading practices	
10. A growing market, both	
internal and external, which	
could be exploited	

Source: MADR, *Plan strategic PAC*, Bucharest, 2024, pp. 87-89 https://www.madr.ro/docs/dezvoltare-rurala/plan-nationalstrategic/2024/PS -2023-2027 versiunea-6.0---Aprobata.pdf [5]

IV. RNPD IN SE OF ROMANIA

According to the table below, the process of attracting European funding for sustainable rural development began during the 2007–2013 financial programming era and is still ongoing throughout the 2014–2020 term.

Table 2. Implementation level of RNPD 2014-2020 in 2019 (Mil euro)

		(IIII Cui o)		
RNPD	Allocations	Contraction	Payments	Payment
2014-		rate %	(Amounts	rate %
2020			reimbursed)	
Priority 1	1,989.79	81.8		52.7
Priority 2	1,139.51	51.2		42.7
Priority 3	2,718.62	52.8		52.8
Priority 4	809.15	53.3	4,236.44	19.3
Priority 5	2,575.41	87.1		40.4
Technical	209.10	35.8		33.5
assistance				
TOTAL	9,441.58	67.7		44.87

Source: Vasile Rusu R.C., Neculiță M., Cristea D., Mogodan A., Petrea Ș., Simionov I., *Sustainable development of rural areas of South-East region of Romania*, Scientific Papers Series Management, Economic Engineering in Agriculture and Rural Development Vol. 20, Issue 2, 2020, p. 525, https://managementjournal.usamv.ro/pdf/vol.20 2/Art69.pdf

In the case of RDNP 2014-2020, all indicators were met by December 2018, surpassing 85% of the targets' value for every priority. In terms of EU reimbursements under the Common Agriculture Policy, Romania is in second place behind France [6].

Given that the weight of the labor force employed in agriculture was fairly similar to that recorded in 1995, the contribution of agriculture to the creation of the national GDP saw a significant decline between 1995 and 2016, going from 14.7% in 1995 to 4.7% in 2016. Romania had the greatest percentage of its workforce in agriculture in 2015, with 25.9%, compared to the EU average of 4.4%.

Despite being one of the world's top exporters of corn and wheat, Romania's economy has struggled since the Revolution due to low harvest yields and average worker productivity that is just 30% of the European norm. The amount of the accessible agricultural space is the reason behind this. At the regional level, the same principles that apply at the national level also apply. With a total area of 35,762 km2, the Southeastern region is the second biggest of Romania's eight regions. The region's overall area makes up 15% of the nation's total area. The six counties that make up the region's administrative framework are Galati, Brăila, Buzău, Vrancea, Constanta, and Tulcea [6].

The South-East region's relief conditions the plains, the Danube River, and the area around the Black Sea—have led to the development of agricultural activity. These had little appreciable impact on the ecology, especially in rural areas. However, deforestation has impacted the stability of the soils in the hill and mountain regions of Vrancea, Buzău, and Galați counties, causing issues. Except for the counties of Vrancea, Buzau, and Tulcea, where the population is predominately rural, the region is primarily urban. The percentage of people living in rural areas is 50.7% in Tulcea, 61.3% in Vrancea, 59% in Buzau, 35.1% in Braila, 30.6% in Constanta, and 43.8% in Galati. The rural population by region numbers is 44.71%, and at the country level is 44.85% [6].

Image 1. Structure of the urban and rural population in the South-East region



Source: https://www.researchgate.net/figure/Geographic-position-of-the-South-East-development-region-Romania-and-the-OECDtypology fig4 313818425 [7] 2,545,923 people, or 12.6% of Romania's total population, were registered as residents of the South-East Region in the 2011 census. In rural places, the same thing happens. The population of rural areas has been steadily declining over the past 12 years, mostly as a result of both domestic and foreign migration brought on by the low per capita income in these areas. Forty percent of the people living in the South East are employed in agriculture. Approximately 65% of the territory was made up of agricultural fields, with 78.2% of the total area being arable [6].

44.8% of all activity in the South-East area are related to agriculture and forestry. As a result, agriculture continues to be a sector that draws investments. Furthermore, considering that the South-East region contains half of the rich land in the Bărăgan Plain, the area is supported by subsidies. The majority of agricultural land is owned by the private sector, which also naturally generates the majority of the crop. According to the area of vineyards, the South-East region leads the nation through Vrancea County. However, because of outdated technology and low human productivity, agricultural goods have a limited processing capacity despite their tremendous potential. In terms of value, the region's crop represented 13.68% of the country's agricultural output in 2007 and 15.86% in 2016. In terms of the overall harvest value in 2016, the area is ranked second in the nation, up from fifth in 2007 [6].

The region's contribution to the creation of the national domestic product decreased from 11.55% in 2007 to 10.6% in 2018. The economic development of the other areas, the mostly agrarian structure, the decreased competitiveness of the South-East region, and the differences among the counties that comprise this region are the main causes of this decline. (Tulcea has a weight of 7% in Romania's GDP, whereas Constanta ranks second behind Timis with a weight of 4.58%.) [6].

Table 3. Evolution of GDP/capita, 2007-2013 (euro per capita)

	2007	2008	2009	2010	2011	2012	2013	2013/200
								7
SE	4,68	5,38	4,44	4,58	4,86	5,06	5,38	114.9
Regio	0	0	0	0	0	0	0	
n								

Source:

 $\underline{https://insse.ro/cms/files/Anuar\%20arhive/serii\%20de\%20date/2013/ASR_20}$ 13_romana.pdf [8]

Table 4. Evolution of GDP/capita, 2014-2017 (euro per

capita)							
	2014	2015	2016	2017	2017/2014		
SE	5,980	6,020	6,370	6,800	113.7		
Region							

 $\frac{\text{https://insse.ro/cms/sites/default/files/field/publicatii/revista_romana_statistic}}{a_supliment_07_2018.pdf} [9]$

Romania ranked sixth in the South-East area with a GDP per capita that was 38% of the European average, according to statistical statistics. Despite having a GDP per capita that is less than the 75% European average, the South-East area is nevertheless seen as less developed. Although GDP growth is generally expected, the region's GDP per capita is still below the national average and does not match the growth rates of the national economy. On average, the area GDP grew by 2.6 percent in 2016, 3.8 percent in 2017, 4.3 percent in 2017, 4.5 percent in 2018, and 4.7% in 2019. However, the GDP in agriculture, forestry and pisciculture had another evolution: it fell off by 9.3 in 2015, it went up by 5.1, in 2016 by 1.8, in 2017 by 1.9 in 2018 and by 1.9 in 2019.

The Common Agricultural Policy may help all aspects of rural sustainable development. Having access to European money is a chance for the region's future growth. The Development Strategy for the South-Eastern Region outlines a number of targets that might serve as the foundation for attracting European funding.

Establishing **Priority** favorable circumstances for the growth of the investment assisting **SMEs** to boost competitiveness, and Priority 7: Modernizing the Rural Economy 7.1 Entering innovation and food safety and certification systems to increase the competitiveness of agri-food farms, zootechnical businesses, and agricultural companies in a system production channels. According to the figure below, the South-East region's counties received

2,674,467,242.56 lei in RDNP funding between 2007 and 2013.

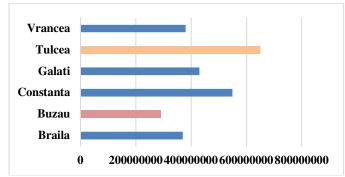


Figure 1. Payments from RDNP 2007-2013

Source: Ursu A., Agrarian Economy and Rural Development - Realities and Perspectives for Romania, Research Institute for Agriculture Economy and Rural Development, Bucharest, Romania, 2018, p. 96, https://mpra.ub.unimuenchen.de/92473/1/MPRA_paper_92473.pdf [10]

Tulcea was the county that received the most funding from the RDNP between 2007 and 2013, followed by Galati and Constanta. With payments totaling 289,178,694.9 lei, or 44.72% of what Tulcea accomplished, Buzau had the worst position.

Data for the 2014–2020 timeframe are gathered through March 31, 2020. It is evident that the county hierarchy throughout this time is identical to that during the 2007-2013 timeframe. First place goes to Tulcea, although Buzau received 39.27% of the money that Tulcea did.

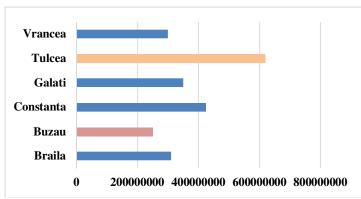


Figure 2. Payments from RDNP 2014-2020

Source: Ursu A., Agrarian Economy and Rural Development - Realities and Perspectives for Romania, Research Institute for Agriculture Economy and Rural Development, Bucharest, Romania, 2018, p. 97, https://mpra.ub.unimuenchen.de/92473/1/MPRA_paper_92473.pdf [10]

Until 31.03.2020 South-East region received payments of 2,237,717,637.07 lei.

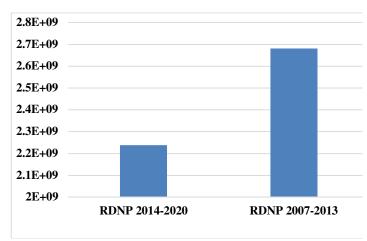


Figure 3. Payments from RDNP 2007-2013 vs RDNP 2014-2020

Source: Ursu A., Agrarian Economy and Rural Development - Realities and Perspectives for Romania, Research Institute for Agriculture Economy and Rural Development, Bucharest, Romania, 2018, p. 99, https://mpra.ub.uni-muenchen.de/92473/1/MPRA_paper_92473.pdf [10]

Just 83.66% of the payments made between 2007 and 2013 were paid between 2014 and 2020. This demonstrates that the region has not yet been successful in developing its CAP fund-attracting policies, which should encourage both businesses and farmers. However, the South East region's rural growth would have been far less without these monies.

V. CONCLUSIONS

European funding have a significant influence on the rural environment. European funding have guaranteed an improvement in the standard of living for rural residents in addition to investing more than 7.6 billion euros in the modernization and development of agricultural and rural infrastructure. Investments in utilities and services have been made. The allotted monies have so far assisted 2,787 agricultural projects and 75,000 farmers.

The absorbed money have been used for flood prevention, irrigation infrastructure restoration, and modernization. In the rural region, more than 100,000 employment were generated,

and more than 3,606 km of forestry and agricultural roads were constructed for the 3 million residents. Additionally, the money was utilized to build the sewage and water supply systems.

In support of the sustainable growth of the rural economy, 3290 non-agricultural SMEs have been established, and initiatives that suggested tourism-related employment have been supported. Romanian rural areas continue to have an urgent need for sustainable development. It has to do with advancement of education, namely the encouragement of schools despite the fact that the number of pupils does not fall within the national boundaries. The development of the Internet network is well recognized. The cost of Internet connectivity is high for residents in Romania's rural areas, particularly in remote areas. Thus, from an economic, social, and psychological perspective, promoting communication over the Internet will have favorable outcomes. Increasing agricultural production without compromising environmental elements (air, water, soil quality, biodiversity) is the problem of sustainable development. It is believed that increasing farmer collaboration, raising the standard of farmer training, and raising the farms' technology endowment level may all help achieve sustainable rural development. For the sustainable development of Romania, considered the most rural country in the European Union and, implicitly, of the South Eastern region, it is necessary to continue the efforts to attract European funds for agriculture, along with a clear vision of development and conservation of the environment.

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