

Agri-Environmental Policy and Rural Development in Bulgaria

Part of the Scientific Seminar “Rural Regions and Rural Development”, held at
Sofia University “St. Kliment Ohridski” on 17 December 2025.

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<https://doi.org/10.63711/ijdr.net202601sofiauni-sem01>

ABSTRACT

This article examines key aspects of agri-environmental policy and sustainable rural development in Bulgaria within the framework of the Strategic Plan for the Development of Agriculture and Rural Areas 2023–2027 (CAP 2023–2027). The analysis focuses on major interventions related to agri-environmental measures, organic farming, biodiversity conservation, and eco-schemes. Particular attention is given to recent policy developments, including expanded support mechanisms, revised eligibility criteria, and improved administrative procedures aimed at facilitating farmer participation. The article highlights the importance of sustainable land management practices, preservation of local plant varieties and animal breeds, and the enhancement of ecosystem services such as pollination and soil fertility. At the same time, key challenges are identified, including administrative complexity, uneven participation across regions, and the need for stronger institutional coordination. The findings suggest that agri-environmental policy plays a crucial role in shaping the future of rural areas in Bulgaria, not only as a tool for environmental protection but also as a driver of economic resilience and regional development. The study contributes to the existing literature by integrating agri-environmental policy analysis with sustainability transition theory and the ecosystem services framework, offering a multidimensional perspective on rural development. It further advances the understanding of CAP implementation in Eastern European contexts by highlighting the interaction between institutional capacity, environmental objectives, and technological transformation.

Keywords: Agri-environmental policy; Rural development; Sustainability; Eco-schemes; Organic farming; Biodiversity; CAP 2023–2027; Bulgaria

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INTRODUCTION

Rural areas in Bulgaria play a fundamental role in the national economy, particularly as primary producers of agricultural goods and raw materials. Despite ongoing processes of economic diversification, these regions remain highly dependent on agriculture and natural resources. In recent years, climate change, environmental degradation, and demographic decline have introduced new challenges that require adaptive and sustainable development strategies.

The European Union's Common Agricultural Policy (CAP) 2023–2027 provides a comprehensive framework for addressing these challenges through targeted interventions in agri-environmental management, climate adaptation, and biodiversity conservation. Bulgaria's Strategic Plan for the Development of Agriculture and Rural Areas (2023–2027) represents a key instrument for implementing these priorities at the national level.

This article aims to analyze the main aspects of agri-environmental policy and their implications for sustainable rural development in Bulgaria. The focus is placed on key measures such as organic farming, conservation of local genetic resources, and eco-schemes designed to improve environmental performance in agriculture. In addition, the article explores the challenges associated with policy implementation and the effectiveness of current support mechanisms.

POLICY FRAMEWORK FOR RURAL DEVELOPMENT IN BULGARIA

The Strategic Plan for the Development of Agriculture and Rural Areas (2023–2027) represents the main policy instrument for implementing the objectives of the Common Agricultural Policy (CAP) in Bulgaria. It builds upon previous programming periods, particularly the Rural Development Programme 2014–2020, while introducing new priorities aligned with the European Green Deal, climate neutrality targets, and sustainable resource management.

A central component of the policy framework is the implementation of agri-environmental and climate measures aimed at promoting sustainable land use and reducing environmental pressures. These measures provide compensatory payments to farmers who voluntarily adopt environmentally friendly practices, such as maintaining high nature value grasslands, preserving endangered local breeds, and applying soil conservation techniques.

In addition to these measures, the policy places strong emphasis on the development of organic farming, which includes plant production, livestock breeding, and beekeeping. The updated framework introduces more flexible conditions for extending existing commitments, revised payment levels, and reduced administrative burdens, thereby encouraging broader participation among agricultural producers.

Eco-schemes represent another key instrument within the CAP 2023–2027, providing financial incentives for practices that contribute to climate mitigation and environmental sustainability. These include actions related to reducing pesticide use, improving soil health, increasing carbon sequestration, and enhancing biodiversity. Their introduction marks a shift toward more result-oriented agricultural policy, linking financial support to measurable environmental outcomes.

LITERATURE REVIEW

The development of agri-environmental policy and sustainable rural development has been widely examined in the academic literature, particularly in the context of the European Union's Common Agricultural Policy (CAP). Previous studies emphasize the growing importance of



integrating environmental objectives into agricultural policy frameworks, highlighting the transition from production-oriented models toward sustainability-driven approaches.

Research has shown that agri-environmental measures play a key role in promoting biodiversity conservation, sustainable land use, and climate change mitigation (European Commission, 2021). These measures are particularly relevant in regions characterized by high nature value farming systems, where traditional agricultural practices contribute significantly to ecosystem preservation.

In the Bulgarian context, rural development has been strongly influenced by structural economic factors, demographic trends, and regional disparities. Earlier studies have emphasized the importance of access to financing, administrative efficiency, and institutional capacity in shaping rural development outcomes (Karadzhov, 2015). These factors remain relevant in the current policy framework, particularly in relation to the implementation of agri-environmental measures. Recent geographical studies also emphasize the importance of spatial characteristics and regional disparities in shaping development processes in Bulgaria. In this context, Patarchanov (2023) highlights the role of territorial structure, cross-border dynamics, and local economic conditions as key factors influencing regional development patterns.

At the same time, several authors have pointed out the challenges associated with the implementation of such policies, including administrative complexity, limited farmer participation, and insufficient institutional coordination. In this regard, recent analyses highlight the need for policy instruments that simultaneously address economic viability and environmental sustainability in rural areas (Pandurski, 2024).

Recent research also emphasizes the importance of applying structured strategic frameworks in the evaluation of rural development policies. In this context, SWOT analysis (Strengths, Weaknesses, Opportunities, Threats) offers a comprehensive tool for assessing both internal capacities and external environmental conditions affecting policy performance. By identifying strengths and opportunities alongside existing limitations and risks, SWOT-based approaches support more informed decision-making and contribute to the development of more effective and adaptive rural policies (Karadzhov, 2025).

Furthermore, broader discussions on sustainability and environmental impact in related fields, such as tourism and regional development, underline the importance of balancing economic growth with ecological preservation. These insights are directly applicable to agri-environmental policy, where similar trade-offs between economic and environmental objectives are observed. In addition, research in related sectors such as tourism highlights the importance of adapting economic activities to changing global trends and sustainability requirements. In this regard, Kirov (2019) emphasizes the evolving characteristics of modern consumers and the need for more flexible and sustainable development models, which are also relevant in the context of rural and agri-environmental policy.

Overall, the literature suggests that while agri-environmental policy has significant potential to contribute to sustainable rural development, its effectiveness depends on the successful integration of multiple policy dimensions, institutional capacity, and the adaptability of implementation mechanisms at the regional level. Recent international research further emphasizes the increasing importance of performance-based agricultural policies and ecosystem service valuation within the CAP framework. Studies indicate that the transition toward eco-schemes and result-oriented payments enhances environmental outcomes but requires robust monitoring systems and farmer engagement (Pe'er et al., 2020; European Environment Agency, 2023).



In addition, the concept of ecosystem services has become central to evaluating the effectiveness of agri-environmental measures, particularly in relation to soil health, water regulation, and biodiversity conservation (Power, 2010). This perspective shifts the focus from purely agricultural productivity toward multifunctional land use systems.

Furthermore, digitalization and precision agriculture are increasingly recognized as key enablers of sustainable rural development. Technologies such as satellite monitoring, GIS-based land management, and smart farming tools support more efficient resource use and improve compliance with environmental standards (Wolfert et al., 2017). These developments are particularly relevant for countries like Bulgaria, where structural challenges require innovative and adaptive policy approaches.

METHODOLOGICAL APPROACH

This article adopts a qualitative research design based on policy analysis of agri-environmental measures and rural development strategies in Bulgaria within the framework of the Common Agricultural Policy (CAP) 2023–2027. The study applies a descriptive and analytical approach, focusing on the evaluation of policy documents, strategic frameworks, and regulatory instruments relevant to sustainable rural development.

The primary sources of information include official documents such as the Strategic Plan for the Development of Agriculture and Rural Areas (2023–2027), reports of the European Commission, and national policy guidelines. These sources are complemented by secondary data derived from academic publications and previous research studies in the fields of rural development, environmental policy, and regional analysis.

The methodological framework is based on document analysis and comparative evaluation of policy instruments, allowing for the identification of key interventions, structural challenges, and implementation gaps. In addition, elements of strategic analysis are applied to assess the effectiveness of policy measures and their contribution to sustainable rural development.

The approach enables a systematic interpretation of the interactions between environmental objectives, economic factors, and institutional conditions. Particular attention is given to the role of policy instruments in promoting sustainable land use, biodiversity conservation, and climate adaptation.

It should be noted that the study is limited by its reliance on secondary data and policy documents, without the inclusion of primary empirical data or quantitative modeling. Nevertheless, the analytical framework provides a comprehensive overview of the current policy environment and its implications for rural development in Bulgaria.

CONCEPTUAL FRAMEWORK: PESTEL-BASED MODEL OF AGRICULTURAL ENVIRONMENTAL POLICY

To better understand the complexity of agri-environmental policy and its impact on sustainable rural development, this study proposes a conceptual framework based on the PESTEL model (see Figure 1). This approach enables a structured analysis of the external factors influencing policy design, implementation, and outcomes.



From a political perspective, agri-environmental policy is shaped by the strategic priorities of the European Union, including the European Green Deal and CAP 2023–2027. These policies define the regulatory and financial framework within which national strategies operate.

Economic factors relate to the financial viability of agricultural practices, availability of subsidies, market access, and income stability of farmers. Agri-environmental measures must balance environmental objectives with economic sustainability to ensure long-term participation.

Social dimensions include demographic trends, rural depopulation, education levels, and the willingness of farmers to adopt sustainable practices. Social acceptance and awareness are critical for the successful implementation of policy measures.

Technological factors are increasingly important, particularly in the context of digital agriculture, precision farming, and data-driven monitoring systems. These technologies enhance efficiency, reduce environmental impact, and support compliance with policy requirements.

As illustrated in Figure 1, the interaction between political, economic, social, technological, environmental, and legal dimensions forms a dynamic system that shapes both policy effectiveness and rural development outcomes.

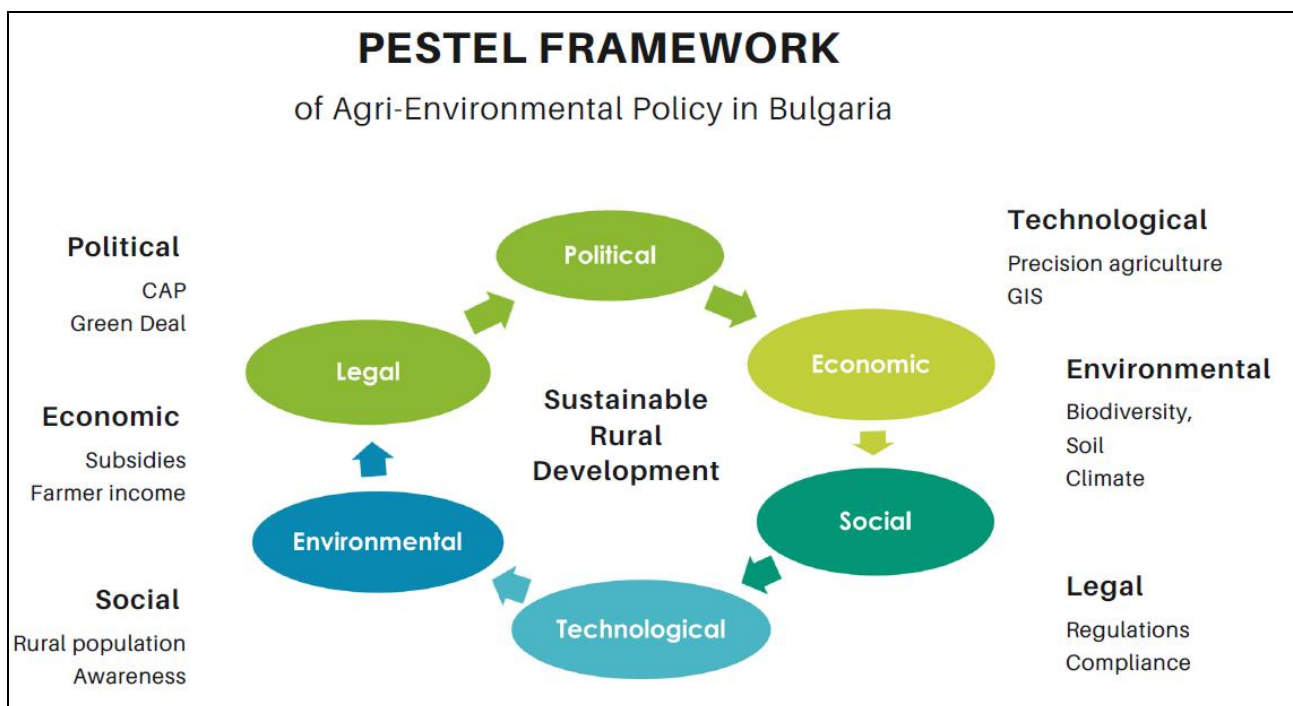


Figure 1. PESTEL Framework of Agri-Environmental Policy in Bulgaria.

Environmental factors represent the core focus of agri-environmental policy, including biodiversity conservation, soil health, water management, and climate change mitigation. These elements define the ultimate objectives of sustainability-oriented interventions.

Legal factors encompass the regulatory framework governing agricultural practices, environmental standards, and compliance mechanisms. Clear and accessible legal requirements are essential for reducing administrative burdens and improving policy effectiveness.

The interaction between these six dimensions highlights the complexity of agri-environmental policy and underscores the need for integrated and adaptive approaches to rural development.

KEY INTERVENTIONS AND MEASURES FOR SUSTAINABLE RURAL DEVELOPMENT

The implementation of agri-environmental policy in Bulgaria is operationalized through a set of targeted interventions that address both environmental protection and rural economic development. These interventions are designed to support sustainable agricultural practices while ensuring the long-term viability of rural communities.

One of the primary interventions focuses on agri-environmental and climate commitments, which aim to preserve biodiversity and maintain ecosystems with high natural value. These include measures for the protection of traditional agricultural landscapes, conservation of rare plant varieties, and support for local animal breeds. Such initiatives contribute not only to environmental sustainability but also to the preservation of cultural and agricultural heritage.

Another important area is the promotion of organic farming, which has gained increasing attention as a sustainable alternative to conventional agricultural practices. Support mechanisms are provided for both conversion to organic farming and maintenance of existing organic production systems. These measures cover a wide range of activities, including crop production, livestock farming, and beekeeping, thus reflecting the multifunctional nature of rural economies.

Special attention is also given to the conservation of genetic resources in agriculture. This includes targeted support for endangered local breeds and plant varieties, which are essential for maintaining biodiversity and ensuring resilience in the face of climate change. The preservation of these resources is closely linked to sustainable land management practices and the protection of ecosystem services.

Furthermore, eco-schemes play a crucial role in encouraging environmentally friendly farming practices. These schemes promote reduced use of chemical inputs, improved soil management, and increased biodiversity on agricultural land. By linking financial incentives to environmental performance, eco-schemes contribute to a more sustainable and resilient agricultural sector.

The overall effectiveness of these interventions depends on their accessibility, administrative feasibility, and alignment with the needs of local farmers. In this context, previous research has emphasized the importance of integrating environmental and economic objectives in rural development policies, as well as the need for adaptive management approaches that respond to regional specificities.

RESULTS

The results of the analysis indicate that agri-environmental policy in Bulgaria under the CAP 2023–2027 is structured around a comprehensive set of measures aimed at promoting sustainable agricultural practices and environmental protection. Key interventions include agri-environmental and climate commitments, support for organic farming, conservation of genetic resources, and the implementation of eco-schemes.

The findings show that these policy instruments contribute to the preservation of biodiversity, improvement of soil quality, and enhancement of ecosystem services. At the same time, they support



the economic sustainability of rural areas by providing financial incentives for environmentally friendly practices.

However, the results also reveal significant challenges related to policy implementation, including administrative complexity, uneven regional participation, and limited access to advisory support. These factors influence the overall effectiveness of the policy framework and highlight the need for further improvements in institutional coordination and policy design.

The results also suggest that the integration of digital tools and precision agriculture practices can enhance the effectiveness of agri-environmental measures by improving monitoring, compliance, and resource efficiency. However, their adoption remains uneven and dependent on regional capacities and access to technological infrastructure.

CHALLENGES AND LIMITATIONS OF AGR-ENVIRONMENTAL POLICY IMPLEMENTATION

Despite the significant progress in the development of agri-environmental policy frameworks, several challenges continue to limit the effectiveness of their implementation in Bulgaria. These challenges are both structural and administrative in nature and reflect broader issues related to rural development and governance.

One of the primary challenges is the administrative complexity associated with participation in agri-environmental measures and eco-schemes. Farmers are often required to comply with detailed regulatory requirements, which may discourage participation, particularly among small and medium-sized agricultural producers. The complexity of application procedures, reporting obligations, and monitoring mechanisms creates barriers that reduce the overall accessibility of these policy instruments.

Another important limitation is the uneven territorial distribution of participation. Certain regions demonstrate higher levels of engagement in agri-environmental schemes, while others remain underrepresented. This disparity is influenced by differences in institutional capacity, availability of information, and local economic conditions. As a result, the intended environmental and socio-economic benefits of the policy are not evenly distributed across rural areas.

In addition, limited awareness and insufficient advisory support further constrain the effectiveness of policy measures. Many farmers lack adequate access to information regarding available funding opportunities, eligibility criteria, and long-term benefits of sustainable agricultural practices. This highlights the need for improved communication strategies and stronger extension services.

From an environmental perspective, the effectiveness of certain measures remains difficult to assess due to the lack of consistent monitoring and evaluation systems. While eco-schemes and agri-environmental commitments are designed to produce measurable outcomes, the absence of standardized indicators and reliable data limits the ability to evaluate their real impact on biodiversity, soil quality, and ecosystem services.

These challenges are consistent with broader findings in the literature, which emphasize the need for integrated and adaptive policy approaches in rural development (Yuleva-Chuchulayna & Karadzhov, 2025). In addition, previous studies have highlighted the importance of balancing environmental objectives with economic sustainability, particularly in regions where agriculture remains the primary source of income.



Overall, addressing these limitations requires a combination of administrative simplification, improved institutional coordination, enhanced advisory support, and the development of more effective monitoring frameworks. Without such improvements, the long-term impact of agri-environmental policy on sustainable rural development may remain limited.

DISCUSSION

The findings of this study highlight that agri-environmental policy in Bulgaria, within the framework of the CAP 2023–2027, is increasingly aligned with the broader paradigm of sustainable development and the European Green Deal. This transition reflects a shift from productivist agricultural models toward multifunctional and sustainability-oriented approaches, where environmental performance, climate resilience, and ecosystem services play a central role.

From a theoretical perspective, the results can be interpreted through the lens of sustainability transition theory, which emphasizes the transformation of socio-technical systems toward more sustainable configurations. In this context, agri-environmental measures and eco-schemes function as policy instruments that aim to reconfigure agricultural practices by incentivizing environmentally responsible behavior. However, the effectiveness of these instruments depends not only on their design but also on the institutional, economic, and social contexts in which they are implemented.

The study also confirms the relevance of the ecosystem services framework in understanding the role of agriculture in rural development. Agricultural systems in Bulgaria, particularly those characterized by high nature value, provide essential services such as biodiversity conservation, soil fertility, and landscape maintenance. The incorporation of these services into policy design represents a significant advancement in aligning agricultural policy with environmental sustainability objectives.

At the same time, the results reveal a persistent gap between policy formulation and implementation. Despite the availability of financial incentives and structured interventions, barriers such as administrative complexity, limited advisory support, and uneven regional participation constrain policy effectiveness. This finding is consistent with broader research indicating that governance capacity and institutional coordination are critical determinants of successful policy outcomes.

Furthermore, the analysis underscores the importance of integrating digitalization into agri-environmental policy frameworks. Precision agriculture, remote sensing technologies, and data-driven monitoring systems have the potential to enhance both the efficiency and accountability of policy implementation. However, the uneven distribution of digital infrastructure and skills may exacerbate regional disparities, suggesting the need for targeted policy interventions that support digital inclusion.

From a policy analysis perspective, the findings support the application of integrated frameworks, such as PESTEL or systems-based approaches, in evaluating rural development strategies. Agri-environmental policy operates within a complex environment shaped by political priorities, economic conditions, social dynamics, technological developments, environmental constraints, and legal regulations. A holistic understanding of these interdependencies is essential for designing adaptive and resilient policy instruments.

Overall, the discussion suggests that while the CAP 2023–2027 provides a robust strategic framework for sustainable rural development, its success in the Bulgarian context depends on the



effective integration of environmental objectives with socio-economic realities, institutional capacity, and technological innovation.

The theoretical contribution of this study lies in the integration of agri-environmental policy analysis with sustainability transition theory and the ecosystem services framework, providing a multidimensional interpretation of rural development processes. By conceptualizing agri-environmental policy as part of a broader socio-technical system, the study extends existing research on CAP implementation, particularly in the context of Eastern European countries. In addition, it highlights the role of institutional capacity and digital transformation as critical mediating factors between policy design and environmental outcomes.

CONCLUSION

This study examined the key aspects of agri-environmental policy and sustainable rural development in Bulgaria within the framework of the CAP 2023–2027. The analysis demonstrates that contemporary policy instruments, including agri-environmental measures, eco-schemes, and support for organic farming, represent a significant step toward integrating environmental sustainability into agricultural policy.

The findings confirm that agri-environmental policy plays a dual role: it contributes to environmental protection through biodiversity conservation, soil management, and climate mitigation, while simultaneously supporting the economic resilience of rural areas. This dual function highlights the growing importance of agriculture as a multifunctional sector that extends beyond food production to include ecosystem services and regional development.

However, the study also identifies critical challenges that limit the overall effectiveness of policy implementation. Administrative complexity, uneven regional participation, insufficient advisory support, and limited monitoring capacity continue to hinder the full realization of policy objectives. These challenges indicate that the success of agri-environmental policy depends not only on financial support mechanisms but also on governance quality, institutional coordination, and stakeholder engagement.

From a theoretical standpoint, the study contributes to the literature by linking agri-environmental policy with broader conceptual frameworks, including sustainability transitions, ecosystem services, and integrated policy analysis. This approach provides a more comprehensive understanding of rural development processes and highlights the need for multidimensional evaluation models.

In practical terms, the results suggest several policy implications. First, there is a need for simplification of administrative procedures and improved accessibility of policy instruments, particularly for small and medium-sized farmers. Second, strengthening advisory services and knowledge transfer mechanisms is essential for increasing farmer participation and improving environmental outcomes. Third, the integration of digital technologies should be prioritized as a key driver of efficiency, transparency, and sustainability in agricultural systems.

Future research should focus on the empirical evaluation of agri-environmental measures using quantitative indicators and spatial analysis, as well as on comparative studies across regions and EU member states. In addition, further investigation is needed into the role of digital transformation and innovation in enhancing the effectiveness of rural development policies.



In conclusion, while the CAP 2023–2027 provides a comprehensive framework for sustainable rural development, its long-term success in Bulgaria will depend on the ability to integrate environmental, economic, technological, and institutional dimensions into a coherent and adaptive policy system.

Declaration by Authors

Ethical Approval: Approved

Acknowledgement: None

Source of Funding: None

Conflict of Interest: The authors declare no conflict of interests.

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How to cite this article:

Kitov, O., & Patarchanova, E. (2026). Agri-environmental policy and rural development in Bulgaria. *International Journal of Digital Research*, E-ISSN 3033-179X, 2(1), 115–125. <https://doi.org/10.63711/ijdr.net202601sofiauni-sem01>

