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THE ROLE OF THE EUROPEAN UNION'S RURAL DEVELOPMENT FINANCIAL INSTRUMENTS IN THE CONSERVATION OF BIOLOGICAL DIVERSITY IN LITHUANIA

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Abstract. *The purpose of this review article is to consider the role of the European Union's rural development financial instruments in preserving biodiversity in the agrarian landscape. This article is important in that there are not many works published on such a topic, and this problem is currently relevant. The main focus of the article is on analyzing and evaluating the impact of the European Union's financial instruments on the conservation of biodiversity in the agrarian landscape. The article analyzes the application of the European Union's financial mechanisms during three periods in Lithuania: 2000–2006, 2007–2013 and 2014–2020. Rural development had specific objectives, measures and activities during each period, with different impacts on biodiversity. In the absence of relevant legislation from the Lithuanian Ministry of Agriculture under SAPARD (the Special Accession Programme for Agriculture and Rural Development), biodiversity measures were not implemented in the first period (2000–2003), and this reduced the effectiveness of implementation in the second period. The second period included measures to protect biodiversity, but farmers and other land users chose measures and activities according to implementation options and compensation payments. In the third period, more measures and activities were implemented than in the second. There were also specific activities to preserve endangered bird species. It should be noted that more funds were allocated to the conservation of biological diversity. The activities of farmers and other land users were different during each period. It was found that the measures and activities were not only selected on the basis of the level of financial compensation, but also on the possibility of their implementation. This research is based on analysis and evaluation via methods such as descriptive and comparative data analysis in different periods. The article is relevant for agrarian researchers, agricultural specialists and scientists in the field of biodiversity conservation.*

Keywords: *rural development, financial instruments, environmentally friendly agricultural measures, biological diversity.*

Reikšminiai žodžiai: *kaimo plėtra, finansiniai instrumentai, aplinkai palankios žemės ūkio priemonės, biologinė įvairovė.*

Introduction

Many scientists have shown that the intensification of agriculture has a negative impact on biological diversity. Different agricultural intensification levels determine the diversity and abundance of individual plants and animals. This has been illustrated by various studies, such as those carried out in Spain (Traba and Morales 2019) which showed that agricultural intensification levels (low, medium and high) in nine European regions had an important effect on the richness of various species of plants, carabids and birds (Flohre et al. 2011), in addition to studies in eight other European countries (Geiger 2011; Geiger et al. 2010). A number of scientific review articles also analyzed the relationship between the richness and abundance of biodiversity and land use intensification in Europe (Batáry et al. 2015; Bockstaller et al. 2011; Clergue et al. 2005; Dapkienė 2016; Donald et al. 2006; Flohre et al. 2011; Kleijn et al. 2009; Tscharntke et al. 2005).

However, a positive relationship between biodiversity and agriculture has been established over the last few decades (Brunetti et al. 2019; Butler et al. 2007; Erisman and van Eekeren 2017; Erisman et al. 2016; Frison et al. 2011; Mierauskas 2011, 2016; Kleijn and Sutherland 2003; Phalan et al. 2011; Pywell et al. 2015). Higher biodiversity leads to higher productivity, and therefore to the better stability and independence of agricultural systems. Such principles are well-identified at the EU level, and are integrated into the EU Common Agricultural Policy (CAP) through a variety of rural development programs (European Commission, 2005). However, in determining the effectiveness of agricultural policy, economic instruments and their measures are to be considered.

Aspects of the Implementation of SAPARD and the Rural Development Plan For the First Period

An important fact is that the failure of the Lithuanian Ministry of Agriculture to prepare national legislation according to SAPARD (the Special Accession Programme for Agriculture and Rural Development, 2000–2003) led to the loss of the opportunity to prepare more appropriately and efficiently for the implementation of the 2004–2006 Rural Development Plan. As a result, in the first year of implementation of the plan, farmers and other land users were not actively involved in the implementation of agri-environmental measures. As a result of this, the implementation of the plan in Lithuania was less effective than in those EU countries that had started implementing measures earlier – even before the start of SAPARD (Kripaitis 2009; Ministry of Agriculture 2007a).

The implementation of the Afforestation of Agricultural Lands and Improvement of Forest Infrastructure SAPARD measure was not accredited. The Environmentally Friendly Agricultural Methods measure was to be implemented in three pilot areas: The

Karst region in Northeast Lithuania (following up the Tatula Program); the Žuvintas Biosphere Reserve; and Rusne Island, located in the Nemunas Delta Regional Park. Under this measure, the protection of biodiversity should have been in effect since 2004. Due to the lengthy accreditation procedure of SAPARD, this measure was not implemented in the context of this program, and, overall, measures for the protection of biodiversity have not been implemented according to it (Ministry of Agriculture 2007a).

The implementation of nature conservation measures began to apply in the entire country upon the adoption of the Rural Development Plan for the 2004–2006 period (including 2007). The plan identified nine measures, including agri-environmental measures for biodiversity conservation. This measure was allocated 15% of the total funds available for all measures. Agri-environmental measures provided for 9 overall and 4 specific objectives, but only 2 overall objectives were directly linked to the conservation of biodiversity (Ministry of Agriculture 2008):

- improvement of the environment (water quality, biodiversity, soil and landscape; preservation of semi-natural agricultural habitats and other important ecological areas) and production of healthy food;
- restoration or preservation of traditional Lithuanian countryside landscapes (meadows, wetlands, marshes).

In the Rural Development Plan, the agri-environment was seen as the most important, hence the inclusion of the following four schemes: 1) Protection of Water Bodies Against Pollution and Soil Erosion on Arable Land (the protective belts of water body shores in meadows); 2) Landscape Stewardship (Management); 3) Organic Farming; and 4) Protection of Ancient Endangered Domestic Lithuanian Animal and Fowl Breeds.

It should be stressed that the importance preserving biodiversity in these measures was varied. The level of compensation was not dependent on the importance of the programs, but rather on the cost of consumption, protection activities, habitat types managed, plant species, livestock and bird species. Due to the specificity and complexity of the program, different individual schemes were chosen by farmers, and this was only directly linked to the level of payments in part.

It was planned that 3,000 farmers (2% of the entire Rural Development Plan) and other land users covering a total of 60,000 ha would enter the agri-environmental measure, but in fact more participated. The number of participants in this measure was 1.5% higher than planned, totaling 3,045, and the land area that they managed was 1.6 times greater than planned. This meant that the measure of implementation was 102% (Ministry of Agriculture 2009). However, it should be noted that only 504 farms (11.4%) participated in the Landscape Stewardship scheme, which is mainly and directly linked to the conservation of biodiversity. This also determined the distribution of funds to these schemes, since compensation payments in the Organic Farming scheme were the largest in the whole measure, accounting for 98.5% of total financial support. Meanwhile, the total number of land users participating in the agri-environmental measure was distributed by schemes as follows: Organic Farming – 76.3%; Protection of Ancient Endangered Domestic Lithuanian Animal and Fowl Breeds – 12.1%; Landscape Stewardship – 11.4%; Protection of Water Bodies Against Pollution and Soil Erosion on Arable Land – 0.2% (BGI Consulting 2016; ESTEP 2008).

It may be an assumption that the lack of interest from farmers in the Landscape Stewardship scheme was because it was not attractive due to the need for specific knowledge in the conservation of biodiversity, and it was more difficult to implement. In addition, the small allocation of funds was also due to the policy of the Ministry of Agriculture, where less money was being diverted to this scheme than to the Organic Farming scheme, and there was insufficient promotion for farmers.

The Priorities and Main Measures of the Rural Development Program in the Second Period

To preserve biodiversity, broader and more comprehensive activities and measures were implemented in the rural development program for the second period – 2007–2013. The rural development program consisted of four axes: I, Improving the competitiveness of the agricultural and forestry sector; II, Improving the environment and the countryside; III, Improving the quality of life in rural areas and evaluating the rural economy; and IV, the LEADER Program (Ministry of Agriculture 2007b, 2014). The most important measures to preserve biodiversity were in Axis II, which received 35.1% of the funds from the entire program. Axis II identified the following three priority areas: 1. Environmentally friendly farming practices, where 29.04% of funds were allocated; 2. Mitigation measures for climate change, which received 15.93%; and 3. Biodiversity and the development of high-value nature and traditional agrarian areas, which was given 55.03%. The third priority was focused mainly on Axis II, which shows the high level of support for this priority during this period (Ministry of Agriculture 2007b, 2013, 2014).

Each priority area was covered by implementation measures. Most were directly targeted at the conservation of biodiversity, and only measures 9 and 10 were not linked or only slightly linked to biodiversity conservation. The following implementation measures were established in Axis II: 1. Agri-environmental payments; 2. First afforestation of agricultural land; 3. First afforestation of non-agricultural and abandoned land; 4. Restoring forestry potential and introducing prevention actions; 5. Non-productive investments in forests; 6. Forest environment payments; 7. Natura 2000 payments to the Water Framework Directive 2000/60/EC; 8. Natura 2000 payments (support for Natura 2000 areas in forests); 9. Payments to farmers in handicapped areas other than mountainous areas (less favored areas for farming); and 10. Non-profit-making investments (Ministry of Agriculture 2013, 2014).

Implementation of Measure 1 – Agri-environmental payments

This measure was one of the most important, since the objectives of the measure were designed to preserve the environment and biodiversity. In Lithuania, Measure 1 – Agri-environmental payments consisted of four schemes linked to biodiversity protection: 1. Landscape Stewardship; 2. Organic Farming; 3. Protection of Ancient Endangered Domestic Lithuanian Animal and Fowl Breeds; and 4. Protection of Water Bodies Against Pollution and Soil Erosion on Arable Land. Each operation of these schemes had

different benefits depending on the complexity of their implementation and the costs involved. However, the amount of support was not related to the importance of preserving biodiversity. In the Landscape Stewardship scheme for biodiversity conservation, the management of natural and semi-natural meadows and wetland activities were the most important. However, for the first activity, the amount of support per hectare was lower (€98/ha) than for the management of wetlands (€229/ha for non-agricultural land, €168/ha for agricultural land). The management of grasslands is also important for preserving biodiversity, but the managing costs for wetlands increased compensation payments (Ministry of Agriculture 2007b, 2013, 2014). Other schemes were also important for the preservation of biodiversity, but their impact was not as important as Landscape Stewardship.

During this period, agri-environmental payments were mainly submitted to support the Landscape Stewardship scheme, but did not receive the highest percentage of financial support out of the number of applications submitted – 72,560 applications, of which 75.7% were financed. Organic Farming received 12,859 applications, and was financed in 76.6% of cases. The Protection of Ancient Endangered Domestic Lithuanian Animal and Fowl Breeds scheme received 1,014 applications, and was financed at the highest rate of 90.4%, but the number of submissions was low. The Protection of Water Bodies Against Pollution and Soil Erosion on Arable Land received the lowest number of applications at 368, and 34.8% received financing. Funds received were not always fully utilized for their intended application. The highest percentage of financing used was independent from the number of applications. In the Organic Farming and the Protection of Ancient Endangered Domestic Lithuanian Animal and Fowl Breeds schemes, all of the funds were used during this period. Meanwhile, in the Landscape Stewardship scheme – the most popular – only 51% of the funds were used by the end of 2013. The lowest percentage of funds was used by the Protection of Water Bodies against Pollution and Soil Erosion on Arable Land scheme, accounting for only 6% of the funding allocated. The use of funds was also dependent not only on the involvement of the beneficiaries in the schemes, but also on the environment and other conditions. The success of the Landscape Stewardship scheme was hampered by the fragmentation of land areas and activities in the management of natural and semi-natural meadows and wetlands. Special agricultural techniques and additional purchases of livestock (cows, horses, sheep and goats) for grazing on grasslands were required. Specific knowledge was also needed for managing meadows and wetlands. It should also be noted that the choice of schemes was significantly influenced by the difference in compensation payments (Ministry of Agriculture 2014, 2015a, 2015b).

Implementation of Measure 7 – Natura 2000 Payments, and Payments Linked to the Water Framework Directive 2000/60/EC (support for Natura 2000 areas in agricultural land)

The overall objective of this measure was to help address specific disadvantages in respective areas resulting from the implementation of: Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild

birds; Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora; and Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for community action in the field of water policy. Thus, this measure intended to contribute to the improvement of quality of life in rural areas and foster environmental awareness in local communities. The specific objective was to integrate environmental requirements in the territories of the Natura 2000 network to protect wild birds, natural habitats, and other species and their habitats. The operational objective was to support farms with agricultural holdings in Natura 2000 areas. The measure also identified indicators for assessing the effectiveness of its implementation, including 14 species of farmland birds (Ministry of Agriculture 2014, 2015a, 2015b).

This measure was not popular in the first year of the period, and while the number of applicants increased later, it did not reach the level of the measure for agri-environmental payments. In this programming period, only 9,761 applications were received, 78% of which were financed; this can be compared with agri-environmental payments, which saw 87,008 applications (Ministry of Agriculture 2014, 2015a, 2015b). There were several reasons for this: a relatively small compensatory allowance and the more difficult management of habitats in a protected area that have additional farming restrictions. Despite the fact that the greater majority of the Natura 2000 land and forest holdings are small-scale and their owners are less active, the number of supported holdings in Natura 2000 network sites in accordance with the 2000/60/EC Directive reached 126% of the planned number. In general, this measure, although not actively involving land users, was shown to have had a positive impact on biodiversity conservation.

The Implementation of Measure 8 – Natura 2000 Payments
(support for Natura 2000 areas in forests)

The overall objectives were: to guarantee the successful implementation of Directives 2009/147/EC and 92/43/EEC with support for private forest owners; helping to address specific problems resulting from implementation; contributing to improving the quality of life in rural areas; and developing environmental awareness in local communities. A specific objective was to integrate environmental requirements in areas of the Natura 2000 network to protect wild birds, natural habitats, and also other species and their habitats. The operational objective was to support private forest owners who own forests in Natura 2000 territories.

This measure was even more unpopular than Measure 7. Only 2,334 applications were received during the period, of which 69% were financed. In order to implement this measure, 68% of funding was received (Ministry of Agriculture 2014, 2015a, 2015b). In some cases, the utilization of funds was limited by factors such as: the unfavorable structure of forest holdings (small forest holdings without forest-based activities); additional requirements for protected areas; and an unappealing amount of support for compliance with certain environmental obligations. Compensation payments were of differing amounts depending on the restrictions applied to the management of forest areas.

It should be noted that the measure only marginally contributed to the improvement of the ecological situation in Natura 2000 areas, and its impact on the country was small. This is because the area supported by the measure, i.e., forests belonging to the Natura 2000 network, was only 0.7% of the designated forest territory in the country (Ministry of Agriculture 2014, 2015a, 2015b).

The implementation of Measures 7 and 8 in Natura 2000 areas paid compensation to landowners and users, but the amounts were not attractive in Lithuania. In total, in Natura 2000 areas, compensation payments amounted to 0.4%, and agri-environmental payments were 43.9% of total Axis II funds (Ministry of Agriculture 2014, 2015a, 2015b). Although these measures had limited payments in Natura 2000 areas, agri-environmental payments and forest environment payments were also implemented in Natura 2000 areas. This resulted in several measures being taken in the entire Natura area, and improved the conservation status of biodiversity during this period.

The Implementation of the Rural Development Program for the Third Period

In this period (2014–2020), biodiversity priorities and measures were partially different from the 2007–2013 period. The priorities for the protection of biodiversity were as follows: restoring, preserving and improving agriculturally-related ecosystems; and restoring, preserving and enhancing biodiversity – including in Natura 2000 sites, in territories with natural or other specific constraints, in areas with a high nature value for farming, and in European landscapes.

In the third period, the agri-environmental payment measures were extended and re-named the agri-environmental and climate measures (Ministry of Agriculture 2015a, 2015b). The following priorities were identified for this measure: 1) restoring, preserving and improving agricultural-related ecosystems; 2) promoting resource efficiency and supporting the transition to climate-resilient, low-carbon technological applications in agriculture and food sectors. A portion of these schemes and activities were the same, but new ideas were also approved, which resulted in increased funding compared to the previous period. In the area of protection of endangered birds, two important schemes were established to preserve the Aquatic Warbler (*Acrocephalus paludicola*), a globally threatened bird species: the preservation of the habitats of the rare bird breed the Aquatic Warbler in natural and semi-natural grasslands; and the preservation of the habitats of the rare bird breed the Aquatic Warbler in wetlands. The activities provided for in the schemes involved the management of natural and semi-natural grasslands and extensively used wetlands. The following functions were to be performed: maintenance of bushes; mowing and harvesting of grass; managing reeds; and the removal of cut bushes, grass and reeds. Despite the fact that the objectives of these schemes were the same and both of them were of equal importance in the preservation of the species in question, farmers did not choose according to the amount of payment. The protection of the Aquatic Warbler in natural and semi-natural grasslands was more attractive than the preservation of the breed in wetlands, despite the fact that the compensatory allowance for the first scheme

was €160/ha, whereas it was €291/ha for the second. While farmers preferred a scheme with lower payments, it was clear that more expenditures and resources would be needed to manage the wetlands and remove plant residues. This is why the scheme was not as popular as grasslands management. Farmers often opted for other easier-to-implement schemes, regardless of payment level (Ministry of Agriculture 2015a, 2015b).

Comparing the Management of Grasslands scheme from the second period with that of this period, two activities can be distinguished: Extension Management of Grass for Grazing Animals; and Management of Specific Grasslands. The other schemes were the same as in the previous period: Extension Management of Wetlands; Strips or Fields of Melliferous Plants on Arable Land; Protection of Water Bodies against Pollution and Protection against Soil Erosion on Arable Land; Maintenance of Slopes in Reclamation Ditches; Improving the Status of Water Bodies at Risk; and Preservation of Endangered Ancient Lithuanian Animal and Fowl Breeds. A new activity was to start from 2020 – Protection against Wolves. The aim of this activity was to promote the application of safety measures and compensation for damage.

The following measures were exactly as in the previous period, only the payments differed: Organic Farming; Natura 2000 payments and payments connected to the Water Framework Directive 2000/60/EC (included Natura 2000 in agriculture and Natura 2000 in forest land); and payments to farmers in areas with handicaps other than mountainous areas (including payments to farmers in areas with heavy natural handicaps, and payments to farmers in areas with specific handicaps).

The funding of all biodiversity, i.e., grasslands, wetlands, and forest management measures and activities, amounted to 30.3% of the total funding of the program, with an increase in the number of schemes –10.6% more than in the second programming period. However, the financing of some measures and schemes varied by more than 50% in the second and third programming periods. When comparing agri-environment (second period) and agri-environment and climate (third period), the number of funded projects increased by 3.0% and 7.6%, respectively – i.e., by just over 50% in the third period. Moreover, organic farming increased by 6.2% and 8.9%, and Natura 2000 payments by 0.3% and 0.4%, respectively (Stonkutė and Vveinhardt 2015). The number of applicants per measure varied, depending not only on the level of support but also on the complexity of the implementation of the measures. The number of approved applications depended not only on the complexity of the implementation of the measures, but also on the quality of the preparation of applications. As a result, there was a different percentage of funding for applications.

Conclusions

1. In Lithuania, in the first period, without the framing of agri-environmentally friendly measures under SAPARD–, the protection of biodiversity in agricultural areas started later than in other European Union countries. This reduced the effectiveness of the implementation of future rural development financial instruments. Although biodiversity protection measures were introduced in the framework of the Rural De-

velopment Plan in 2004, the activity of farmers and other land users was low, and compensatory measures were not actively used.

2. In the second period (2007–2013), several measures were implemented for biodiversity conservation. The following measures had the greatest positive impact on biodiversity: Agri-environmental payments; Forest environment payments; Natura 2000 payments linked to the Water Framework Directive 2000/60/EC; and Natura 2000 payments (support for Natura 2000 areas in forests). Farmers and other land holders chose the first two easier-to-implement measures. Both Natura 2000 measures were less popular because of additional land use restrictions in protected areas, despite the level of compensation payments.
3. In the third period (2014–2020), the majority of farmers and other land users chose the same measures as in the second period, with similar compensation. In this period, the increase in the number of implementation schemes and wider compensation payments did not make applications significantly more attractive. Two very important schemes for the protection of the globally threatened Aquatic Warbler were not popular because of their additional requirements and knowledge, so they were chosen by farmers with broader environmental knowledge or environmental NGOs, regardless of the level of compensation.
4. The financial instruments of the European Union rural development have had different impacts in the conservation of biodiversity across all three periods. These impacts depended not only on the number of measures and schemes, but also on the different levels of compensation. However, farmers and other land managers made choices not only because of the maximum compensation payments, but also because of the complexity of implementation and environmental expertise available. In conclusion, the implementation of rural development measures in the conservation of biodiversity depends on the variety of measures and schemes, their availability, the feasibility of implementation by farmers and other land users, and the level of environmental knowledge and motivation.

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EUROPOS SĄJUNGOS KAIMO PLĖTROS FINANSINIŲ INSTRUMENTŲ VAIDMUO IŠSAUGANT BIOLOGINĘ ĮVAIROVĘ LIETUVOJE

Anotacija. *Europos Sąjungoje kaimo plėtra yra viena iš prioritetinių sričių. Kiekviena Europos Bendrijos šalis, atsižvelgdama į Europos Sąjungos teisės aktus, parengia nacionalines programas. Šalyse narėse veikia kaimo plėtros Europos Sąjungos finansiniai instrumentai, adaptuoti pagal kiekvienos šalies poreikius. Šiame straipsnyje yra nagrinėjami Europos Sąjungos finansiniai instrumentai, taikomi Lietuvoje. Šiuo tikslu yra analizuojamas minėtų instrumentų poveikis saugant biologinę įvairovę agrariniame kraštovaizdyje. Europos Sąjungoje buvo išskirti trys programavimo laikotarpiai, dėl to pasirinkta išanalizuoti finansinių mechanizmų taikymą visuose trijuose programavimo laikotarpiuose Lietuvoje (2000–2006, 2007–2013 ir 2014–2020). Kaimo plėtrai tam tikrais laikotarpiais buvo būdingi specifiniai tikslai, priemonės ir veikla, dėl to poveikis biologinei įvairovei yra skirtingas. Lietuvos Vyriausybei neparengus atitinkamų teisės aktų pagal SAPARD (2000–2006) biologinės įvairovės programą, priemonės pirmuoju programavimo laikotarpiu nebuvo vykdomos ir tai sumažino įgyvendinimo efektyvumą antruoju*

programavimo laikotarpiu, taip pat prarastos lėšos, skirtos biologinei įvairovei išsaugoti. Antrajame programavimo laikotarpyje buvo numatytos biologinės įvairovės apsaugos priemonės, tačiau ūkininkai ir kiti žemių naudotojai rinkosi priemones ir veiklas pagal įgyvendinimo galimybes ir skiriamas kompensacines išmokas. Trečiajame programavimo laikotarpyje buvo įgyvendinama daugiau skirtingų priemonių ir veiklos nei antrajame. Taip pat buvo ir specifinės veiklos, skirtos išsaugoti retoms paukščių rūšims, pvz., meldinės nendrinukės išsaugojimo veikla. Šiuo laikotarpiu biologinei įvairovei išsaugoti buvo skiriama daugiau lėšų negu antruoju. Išanalizavus antrojo ir trečiojo laikotarpių priemonių ir veiklos įgyvendinimą nustatyta, kad ūkininkų ir kitų žemės naudotojų aktyvumas buvo skirtingas atskirais laikotarpiais. Nustatyta, kad priemones ir veiklą gavėjai rinkosi ne tik pagal kompensacinių išmokų dydžius, bet ir pagal jų įgyvendinimo galimybes. Dėl to dalis priemonių ir veiklos buvo nepatrauklios nepaisant to, kad jos yra svarbios biologinės įvairovės išsaugojimui.

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