

THESIS SUMMARY BOOKLET

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**Agri-environmental protection as an indicator of regional integration depth:
A comparative study of the European Union and the integration systems of
Latin America and the Caribbean**

booklet for PhD thesis

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1. RESEARCH HISTORY AND JUSTIFICATION OF THE TOPIC

The relationship between agriculture and the environment has become a key issue in international and regional policy debates in recent decades. Agriculture both relies on and contributes to the strain on natural resources. Production intensification, land use change, greenhouse gas emissions, increased use of water resources, soil degradation and biodiversity loss all justify closer coordination of agricultural and environmental policies. Meanwhile, the growth of global food demand further increases the pressure on natural resources. However, agriculture is not only a cause but also a victim of environmental problems. Climate change-related heat waves, droughts and floods, as well as changes in water resources, soil degradation and biodiversity loss increase the vulnerability of agricultural systems. As these processes are increasingly difficult to manage within national frameworks, regional integration organisations are becoming increasingly important actors in agri-environmental governance.

The fundamental starting point of my dissertation is that agri-environmental policy can be a suitable analytical framework for examining the depth of regional integration. This policy area affects both the economic interests of Member States and their sovereignty, since effective regional action requires common standards, institutional coordination and implementation capacity. The analysis of the institutionalization of agri-environmental protection therefore also creates an opportunity to examine the extent to which regional integration is able to develop common policy objectives and enforce them at Member State level.

My doctoral dissertation is the result of a longer research process. Over the past 10 years, my scientific interest has gradually shifted from the examination of international relations and European integration to the connections between regional and environmental economics, agricultural policy, foreign trade and regional integration. The direct research antecedent of my dissertation was a comprehensive examination of the agri-environmental model of the European Union and the Southern Common Market (MERCOSUR) and the EU-MERCOSUR free trade agreement. My thesis on this topic won second place in the Agricultural Economics Subsection of the Agricultural Science Section of the National

Student Research Conference in 2021. This research focus was eventually fulfilled in my later publications and doctoral research.

The geographical and thematic expansion of my study was based on several scholarship-based research projects. In 2020, I conducted research in Buenos Aires and Montevideo on the agricultural policy of MERCOSUR and the EU-MERCOSUR agreement as part of a Campus Mundi scholarship, and in 2022, I conducted semi-structured expert interviews in Lima on the agricultural policy of the Andean Community (CAN). Within the framework of the New National Excellence Program, my research initially focused on comparing the agricultural policies of MERCOSUR and the EU, and subsequently on exploring opportunities for developing Hungarian agricultural exports to Latin America. This was followed by exploring opportunities for developing agricultural innovation knowledge transfer to the countries of the Central American Integration System (SICA) and the Caribbean Community (CARICOM), and subsequently by examining agricultural export and innovation relations between Hungary and Brazil, Colombia, and Mexico with the support of the University Research Scholarship Program. The above research process was also accompanied by the publication of several articles.

The reference point for the comparative analysis presented in my dissertation is the Common Agricultural Policy (CAP) of the European Union. During the development of the CAP, agricultural and environmental objectives have gradually been linked, and especially since the 1990s, the environmental elements of agri-environmental measures, cross-compliance and rural development policy have become increasingly prominent. In my opinion, the CAP has thus become an institutionalized policy model that can serve as a reference point for other regional integrations.

In Latin America and the Caribbean, regional integration systems have developed in parallel under different historical, political and economic circumstances. The dissertation compares the agri-environmental policies of MERCOSUR, CAN, SICA and CARICOM with the related measures of the EU. In several countries of Latin America and the Caribbean, agriculture remains a dominant export sector, and therefore a particular tension can be observed in the region between the requirements of economic growth and competitiveness and environmental sustainability.

One of the most important elements of the justification for the research was precisely the comparison of integration systems with different levels of institutional development. The examination of the EU, Latin America and the Caribbean region made it possible to explore the institutional, financial, economic and social conditions under which environmental aspects can be integrated into regional agricultural policy. The relevance of the research is further underscored by the growing economic ties between the EU and Latin America, particularly by the sustainability debates surrounding the EU–MERCOSUR agreement. Another important dimension of my research is the examination of policy transfer. Due to the high level of institutionalization of the CAP, it represents a reference model whose norms, instruments and institutional solutions can also affect other integration systems. Following the above, my comparative analysis also aimed to explore how European policy patterns are transferred to different institutional, economic and social environments, and what consequences adaptation has for actual implementation.

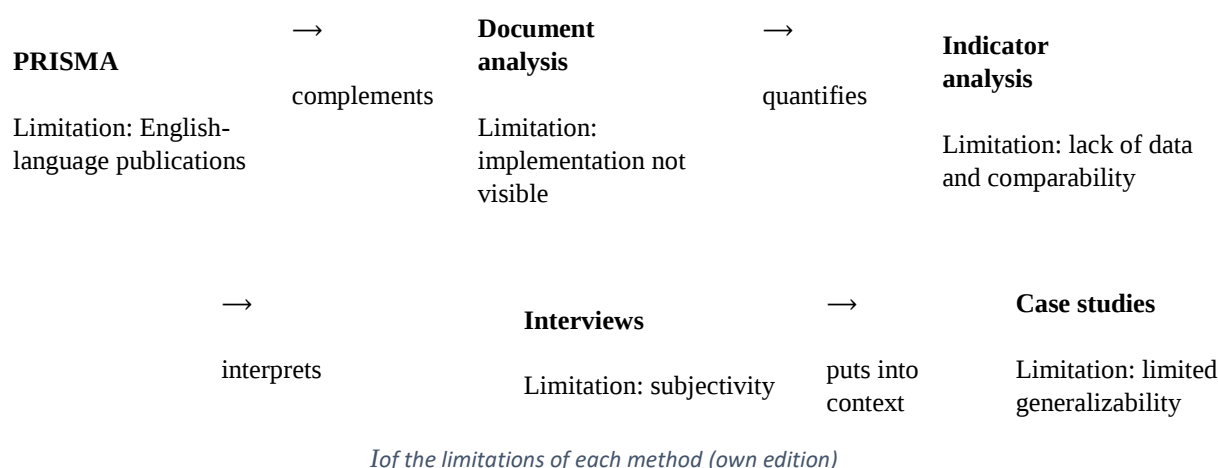
The targeted selection of the integrations examined also allowed for the comparison of different agroecological regions, environmental challenges and production models. In MERCOSUR, I identified the expansion of agricultural areas and deforestation, in CAN the depletion of water resources, in SICA countries droughts, hurricanes and food security, and in CARICOM sea level rise and the vulnerability of small island states to climate change as the most defining challenges.

2. THE METHODS USED

The dissertation used a *mixed-methods* research methodology to compare agri-environmental policies at the interregional and integration levels. The aim of using qualitative and quantitative methods together was to make the agri-environmental policies of the European Union, MERCOSUR, CAN, SICA and CARICOM comparable in institutional, economic and environmental dimensions. The different methodological approaches complement each other and reduce the biases resulting from the limitations of each method.

My research strategy consisted of five, overlapping elements: a structured literature review, qualitative document analysis, quantitative indicator-based comparison, semi-structured expert interviews, and case studies. The relationship between the methods and

the management of the limitations of each procedure are summarized in the figure below. According to the logic of my research, the structured literature review was complemented by a broader document analysis; the examination of formal institutions was quantified by indicator analysis; the quantitative results were interpreted by interviews; and finally, the case studies placed the regional-level findings in a national context.



The first methodological pillar of my doctoral dissertation was the structured literature review, which served to establish the theoretical and conceptual framework of the study and to identify the research gap. The literature search was based on keyword searches in the *Web of Science* and *Scopus* databases, and the PRISMA methodology guidelines were used to select the studies. The advantage of the method was the transparent and reproducible source selection, but its limitation was the dominance of English-language publications. I addressed this in later chapters of the dissertation by including Spanish-language literature and so-called grey literature.

The second methodological element was a qualitative document analysis, which was based on a comparative examination of integration treaties, legislation, strategies, agricultural and environmental policy programmes, and other related institutional documents. The aim of this was to explore the relationship between agri-environmental institutionalisation, policy objectives, applied instruments, binding standards, and regional and national priorities. A limitation of the document analysis was that formally adopted standards do not necessarily imply their actual implementation, therefore I tested their real-life agri-environmental results through additional empirical methods.

As mentioned above, the third methodological pillar of my dissertation was a quantitative indicator-based comparative analysis. The multidimensional indicator system examined the dimensions of agricultural pollution and input intensity, land and water use, biodiversity, agricultural GHG emissions and policy input. The indicators used included, among others, fertilizer and pesticide use, forest area and net forest conversion, agricultural water use, the proportion of protected areas, agricultural GHG emissions and government expenditure on agriculture. I did not aggregate the individual dimensions into a single composite index of my own, the indicators essentially served as a comparative and contextualizing tool.

The fourth methodological pillar was semi-structured expert interviews, which allowed me to examine the practical, institutional and economic mechanisms behind the formal policy structures and quantitative results. The interviewees were selected through purposive expert sampling. The sample included decision-makers, experts and institutional actors who had direct knowledge of the agricultural, environmental or trade policy processes of the integrations under study. The aim was not to achieve statistical representativeness, but to include expert perspectives rich in new, complementary background information. The indicators and the interviews formed complementary levels of interpretation. While the former presented the agri-environmental profile of each integration, the latter helped to interpret the extent to which the differences were related to common regulation, financing, policy coordination or possibly to conflicts of interest between Member States.

The methodological framework was finally complemented by case studies using the examples of Spain, Argentina, Colombia, Panama and Belize. The main criteria for the targeted selection of countries were the importance of the agro-economic sector within the integration process, the role of agriculture in the national economy, the availability of policy documentation and institutional stability. The case studies examined how regional objectives and institutional frameworks are reflected in the policy practice of the Member States. This allowed a direct link between regional institutional analysis and the examination of national-level adaptation and implementation.

3. SCIENTIFIC RESULTS OF THE DISSERTATION

The central question of my research was to what extent agri-environmental policy can be considered a policy area that indicates the depth of regional integration. To examine this, I formulated three research questions in the dissertation. These concerned the institutionalization of agri-environmental policies, the similarities and differences between the European Union and Latin American and Caribbean integrations, and the policy role model of the EU. My doctoral dissertation specifically sought answers to the following main research questions:

- 1. To what extent have the agri-environmental policies of the regional integrations examined (EU, MERCOSUR, CAN, SICA, CARICOM) been institutionalized?**
- 2. What similarities and differences can be observed between the agri-environmental policies of the European Union and those of Latin American and Caribbean integration organizations?**
- 3. What role does the European Union's agri-environmental policy play in the policy development of regional integration in Latin America and the Caribbean?**

Based on the results of the first research question, agri-environmental policy has been institutionalized in all examined integrations, but its depth and form differ significantly. The European Union has the strongest regional implementation and financing capacity. In the CAP, environmental objectives are linked to common regulations, support mechanisms, a conditionality system and control. In the Latin American and Caribbean integrations, on the other hand, agri-environmental cooperation is primarily based on strategic coordination, programs and regulations without legal binding force. However, this does not mean that regional agri-environmental policy is lacking. SICA and CARICOM in particular show significant policy coordination, but in neither integration system has developed a common financing, control and sanctioning system similar to the CAP. An important result of my research is therefore that the existence of common institutions and strategies is not in itself the same as deep policy integration. For example, the MERCOSUR Family Farming Assembly ensures effective regional coordination and participation, but in the absence of independent decision-making authority, it does not represent supranational policy integration similar to the EU model.

My investigations conducted in response to the second research question showed that there is significantly greater convergence between the EU and Latin American and Caribbean integrations in terms of policy objectives than in terms of instruments used, financing and implementation. Sustainable resource use, biodiversity protection, climate adaptation, and soil and water protection appear among the policy objectives of all the integrations examined. The main difference is therefore not primarily in the declared environmental objectives, but in their institutional enforceability and implementation capacity.

However, my quantitative results partly qualified the above findings. Higher institutionalization did not automatically lead to more favorable values for all environmental indicators. For example, CAN and SICA achieved significant improvements in some indicators, while their institutional integration is weaker than that of the EU. Based on the results, it can therefore be stated that the relationship between policy institutionalization and measurable environmental performance is not linear. The latter is significantly influenced by the production structure, land use, climatic conditions and the structure of the economy.

My third research question examined the role of the European Union as a model and policy transfer. The results showed that the EU is indeed an important normative and policy reference point for Latin America and the Caribbean, but the transfer does not operate as a simple copy. The uptake of EU norms and policy solutions is selective and is adapted by the receiving integrations to their own institutional capacities, economic priorities and environmental challenges. The outcome of policy transfer is therefore not determined solely by the characteristics of the issuing model, but at least to this extent by the depth of integration of the receiving system.

In relation to the research questions, I defined the following hypotheses at the beginning of my dissertation:

A. Institutionalization hypothesis

According to the hypothesis, the institutionalization of the agri-environmental policies of the examined Latin American and Caribbean regional integrations is lower than that of the European Union's Common Agricultural Policy. I assumed that in the European Union, agri-environmental objectives are achieved through legally binding regulations,

independent institutions, financing mechanisms and implementation systems, while in the examined Latin American and Caribbean integrations all of these are absent.

B. Policy transfer hypothesis

According to the hypothesis, the European Union's agri-environmental policy has a demonstrable impact on the policy documents of the examined Latin American and Caribbean regional integrations, however, this impact appears primarily at the level of strategic objectives, principles and policy discourse, while it is more limited in binding legal regulations and implementation mechanisms.

C. National determination hypothesis

According to the hypothesis, in the examined Latin American and Caribbean regional integrations – despite common agri-environmental objectives and policy frameworks – the practical implementation of policies and the applied tool set are determined mainly by the institutional, economic and natural conditions of the member states. As a result, unlike the EU, significant differences can be observed in the implementation of agri-environmental measures in Latin American and Caribbean integrations even within the same integration organization.

D. Agricultural policy priorities hypothesis

In the agricultural policies of the examined Latin American and Caribbean regional integrations, the hypothesis is that economic objectives serving to strengthen productivity, export orientation and international competitiveness continue to enjoy priority, while environmental aspects typically play a secondary role. I therefore assumed that the agri-environmental policy profile of the examined Latin American and Caribbean integrations and the related environmental indicators differ from the more institutionalized agricultural policy model of the European Union, which emphasizes sustainability aspects.

My hypothesis testing basically confirmed the direction of the initial assumptions of the research, but all four hypotheses needed to be clarified. In my dissertation, these clarifications appear as research results in themselves. A particularly important result is that the stronger production, export and competitiveness orientation of Latin American and Caribbean integrations does not necessarily lead to less favorable environmental performance. The relationship between environmental outcomes and policy priorities is

more complex than this. The hypothesis testing of my dissertation is summarized in the table below:

Hypothesis	Main empirical result	Clarification	Evaluation
A – Institutionalization hypothesis	In the EU, environmental requirements have also been integrated into the legal, financing and enforcement system of the CAP. Regional institutions also exist in Latin American and Caribbean integrations, but their legal binding force, joint financing and enforcement capacity are weaker.	The difference is not in the existence of institutions, but in the quality and depth of institutionalization.	Partially confirmed
B – Policy transfer hypothesis	EU policy models and norms are presented as references, but the instruments may have different functions in the local economic, social and institutional context. Similarity does not always prove a direct EU impact.	Transfer is not simple reproduction, but selective adaptation and functional reinterpretation.	Partially confirmed

Hypothesis	Main empirical result	Clarification	Evaluation
C – National determination hypothesis	The same or similar regional goals are reflected in different policy instruments across countries. Social structure, vulnerability to climate change, land use and national institutional systems strongly shape implementation.	National specificity is strong, but a deeper examination of one country per integration limits the full testing of differences within integration.	Confirmed (methodological limitation)
D – Agricultural policy priorities hypothesis	Economic and production priorities are decisive, while CAN and SICA showed improvements in some environmental indicators.	The dominance of economic priorities does not automatically mean less favorable environmental performance; the relationship is not linear.	Confirmed

II: Hypothesis testing (own edition)

The theoretical contribution of my dissertation can be summarized in two interrelated statements. On the one hand, agri-environmental policy is suitable for the policy operationalization of the depth of regional integration, because it simultaneously requires common norms, institutional coordination, financing and implementation capacity, while directly affecting the sovereignty and economic interests of the Member States. On the other hand, the depth of regional integration itself determines the extent to which and in what form external policy patterns can be integrated into the host system.

Consequently, one of the most important new scientific findings of my research is that the depth of agri-environmental integration cannot be measured solely by the existence of common environmental objectives, but by the strength of the link between objectives, legal binding force, financing, implementation capacity and Member State application. The integrations examined cannot therefore be placed simply on a “developed–underdeveloped” scale, but represent different agri-environmental integration models. This also answers the basic premise of the dissertation. Agri-environment can indeed be used as an indicator of the depth of regional integration. However, the specific depth of regional integration is shown by the extent to which jointly formulated environmental objectives are translated into common institutions, binding standards, financing mechanisms and actual Member State implementation.

4. MAIN REFERENCES

Reflecting the interdisciplinary nature of the dissertation, its literature and source base drew on multiple academic disciplines and a diverse range of sources. The research drew on the literature on agri-environmental management, ecosystem services, theories of regional integration and multi-level governance, works on the European Union's Common Agricultural Policy, and the literature on Latin American and Caribbean regionalism. The empirical study was based on scientific publications, as well as on the founding treaties, legal acts and strategic documents of regional integration organizations, reports and statistical databases of international organizations, and on the author's own expert interviews.

In developing the theoretical and conceptual framework, ecosystem services, payments for ecosystem services (PES), the literature on institutional embeddedness and agri-environmental governance played a decisive role. The dissertation drew on the work of, among others, Ostrom (2005), Leimona et al. (2015), Barton et al. (2017), Meyer et al. (2018), Thompson and Harris (2021), Sattler et al. (2023), Dobšínská et al. (2024), and Borniotto et al. (2025). Ostrom's institutional analysis approach was of outstanding theoretical importance, providing a framework for examining the interactions between rules, institutions, and actors. The literature review emphasized the recognition that the

effectiveness of PES and other market-based agri-environmental instruments depends not only on their technical design but also on their institutional and social embeddedness.

An important literature pillar for the analysis of agri-environmental programs and governance models were the work of Öhlund et al. (2015), de Krom (2017), Westerink et al. (2017), Velten et al. (2018), Šumrada et al. (2020), McCarthy et al. (2018, 2021), Alblas and van Zeven (2023), Sattler et al. (2023). A recurring issue in the European literature was the relationship between supranational regulation and national adaptation, multi-level governance, contract design and the integration of biodiversity objectives. In contrast, the Latin American literature focused more on PES, forest protection and enforcement.

The methodological foundation of the research was provided by a structured literature review, document analysis, multidimensional indicator-based comparison, semi-structured expert interviews and comparative case studies. Here, in particular, Bammer (2013), Brousselle and Champagne (2011), Patton (2015), Palinkas et al. (2015), Bastidas-Orrego et al. (2023), and the PRISMA methodological framework should be highlighted. The background for the selection of agri-environmental indicators was provided by the works of Bathaei and Štreimikienė (2023), Gharsallah et al. (2021), Soulé et al. (2021), Valizadeh and Hayati (2021) on sustainability indicators.

The literature on the development, reforms, greening and agri-environmental instruments of the CAP was a key element in the presentation of the European Union's Common Agricultural Policy and its environmental dimension. This includes, among others, the works of Matthews (2013), Wąs et al. (2014), Öhlund et al. (2015), Brady et al. (2017), Bazzan et al. (2023), Röder et al. (2024), and Runge et al. (2025). The literature has been supplemented by the European Commission's CAP documents and other EU regulatory materials.

Important authors in the theoretical and historical interpretation of Latin American regionalism are Dabène (2009), Tussie (2009), Malamud and Gardini (2012), Sanahuja (2012), Puntigliano and Briceño Ruiz (2013), Quiliconi and Salgado Espinoza (2017), Jenne et al. (2017), and Nolte and Welffen (2024). These works made it possible to interpret the different waves of Latin American regionalism and the different degrees of institutionalization. From the point of view of the dissertation, it was particularly important to examine the heterogeneity of Latin American integrations, to identify regional projects

that partially overlapped with each other, and to exclude integrations that were not relevant to the dissertation.

The main sources of literature for the analysis of MERCOSUR included Gligo (1996), Bianchet (2005), Segrelles Serrano (2004), González (2013), Torres and Díaz (2011), while in the primary source base the basic and institutional documents of MERCOSUR, as well as the environmental policy norms, were given a prominent role. The literature background for the study of CAN included Anido Rivas (2008) and Ochoa et al. (2014), while the primary sources included the 1969 Cartagena Agreement and the decisions shaping the CAN's agricultural institutional system and policy. In the analysis of SICA, the regional organization's own strategic documents were given particular weight. The most important primary sources included the 1991 Tegucigalpa Protocol, the 1993 Guatemala City Protocol, the Regional Agri-Environmental and Health Strategy, the Central American Territorial Rural Development Strategy 2010–2030 and the Regional Climate Change Strategy. The essential primary sources for the CARICOM analysis are the Revised Treaty of Chaguaramas, the Caribbean Community Agricultural Policy Document, the Jagdeo Initiative, the Liliendaal Declaration and the CARICOM's other climate-change-related framework strategies. The interpretation of Caribbean specificities was based on the scientific literature, including the works of Saint-Ville et al. (2016), March et al. (2023), Foster et al. (2017) and Gachot et al. (2024).

To present the agricultural and environmental context of Latin America and the Caribbean, I relied on the analyses of, among others, Andersson and Palacio (2019), Martín-Retortillo et al. (2021), Reyer et al. (2015), de Miguel and Sánchez (2023), Jat et al. (2016), and the IPCC (2022) to present the agricultural and environmental context of Latin America and the Caribbean. The latter provided an important background in particular for the interpretation of the connections between climate change, agricultural vulnerability, and adaptation.

The primary data source for my quantitative comparative analysis was the FAOSTAT databases. These included data on, among others, fertilizer and pesticide use, forest area and forest conversion, agricultural water use, agricultural emissions, public expenditure on agriculture, and progress in sustainable agriculture. The FAOSTAT database was supplemented by the *Climate Watch* database with greenhouse gas emissions data, *IBAT*

Alliance with protected areas data, and for some analyses, I also used data from *Our World in Data*.

Last but not least, the semi-structured expert interviews constituted the independent, primary empirical source group of my dissertation. The research involved decision-makers, ministerial and diplomatic experts, researchers, representatives of regional integration institutions and agricultural policy experts from the European Union and the integration systems under study. The sample included experts from the Hungarian Ministry of Agriculture, the General Secretariat of the Andean Community, the MERCOSUR Parliament, Latin American agricultural policy institutions, embassies and research organizations, among others.

5. LIST OF OWN PUBLICATIONS RELATED TO THE TOPIC

1. **Báló András (2025):** A magyar agrárexport és agrárinnovációs tudástranszfer fejlesztési irányai Latin-Amerika vezető államaiban: Brazília, Kolumbia és Mexikó példája. *Falu*, 40(3), 5–30.
2. **Báló András (2024):** Olcsó húsnak híg a leve? Az Európai Unió és a Dél-amerikai Közös Piac agrár-környezetvédelmi modellje az EU–Mercosur szabadkereskedelmi megállapodás tükrében. *Studia Mundi – Economica*, 11(4), 5–18.
3. **Báló András (2024):** A magyar agrárinnovációs tudás-transzfer fejlesztési lehetőségei a Közép-amerikai Integrációs Rendszer és a Karib-tengeri Közösség országaiban. *Falu*, 39(4), 17–40.
4. **Báló András (2023):** A közép-amerikai mezőgazdaság reneszánsza: az innováció ereje. In: Kárpáti Árpád (szerk.): *Az innováció kultúrája: A kultúra innovációja*. Antológia Kiadó, Lakitelek, 63–74.
5. **Báló András (2022):** A magyar agrárexport fejlesztési irányai az Andok Közösség és a Dél-Amerikai Közös Piac országaiban. *Külügyi Műhely*, 4(2), 69–100.
6. **Báló András (2021):** *The Andean Common Agricultural Policy: A Pioneer of Agri-Environmental Protection?* In: Nagy Benedek et al. (szerk.): *15th International Conference on Economics and Business: Challenges in the Carpathian Basin*. Risoprint, Kolozsvár, 19–33.