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LEGAL ASPECTS OF THE REGULATION OF LAND RELATIONS IN THE CONTEXT OF MODERN ECONOMIC CHANGES

ABSTRACT

The purpose of this work is to examine the legal mechanisms governing land relations in the context of modern economic changes, with a particular focus on Kyrgyzstan, the USA, and European countries. The study employs a comprehensive approach, incorporating a comparative legal method to analyse the legislation of Kyrgyzstan, the USA, and European countries, a systems analysis method to assess the effectiveness of legal norms, and an empirical method to investigate the practical application of land legislation. The study addresses key challenges, including the lack of transparent land accounting, insufficient automation of cadastral data, and legal uncertainty in the field of land management. Primary attention is given to the regulatory and legal framework of Kyrgyzstan, the activities of the state agency “Cadastre”, and statistical data on land use. To broaden the context, a comparative analysis is conducted with the legislation of Germany and France, which exhibit a high level of decentralisation and automation in land relations. Several methods are employed in the study, notably the analysis of regulatory legal acts and cartographic analysis. Particular emphasis is placed on the

role of modern information technologies in enhancing the efficiency of land administration. The article also outlines issues related to limited citizen access to information about land resources and the restrictions in inter-agency cooperation, which hinder effective land management. In addition, the impact of economic changes on regulatory and legal frameworks is analysed, with proposed mechanisms for adapting legislation to new conditions. Consequently, the article presents recommendations for improving land legislation in Kyrgyzstan, notably the establishment of transparent electronic accounting mechanisms and the integration of international standards. The importance of enhancing cooperation between state bodies and ensuring citizen access to land information is particularly emphasised. This study seeks to address gaps in the scientific literature concerning the impact of economic changes on land law in Kyrgyzstan and to offer practical recommendations for reform in this field.

KEYWORDS: international experience; decentralisation; property rights; land use; environmental standards; legislative mechanisms; state control.

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1. Introduction

The relevance of studying the legal aspects of regulating land relations in the context of modern economic changes arises from the numerous challenges faced by countries amid globalisation, economic instability, and the transformation of land relations. Under these conditions, it is essential to examine the experiences of other countries in effectively regulating land relations, as sound legal support in this area can serve as a foundation for stable economic development and social well-being. Of particular interest is the issue of adapting land legislation to the requirements of a market economy, in which land resources become not only objects of ownership but also vital economic assets that influence the development of the agricultural sector and local communities. In Ukraine, as in several other post-Soviet countries, land relations have undergone significant changes following the transition to market conditions; however, the reform process remains incomplete and requires further enhancement of legal regulation. Modern economic changes – specifically the financial crisis, shifts in the agricultural sector, global climate change, and

transformations in international trade – necessitate a re-evaluation of existing land management mechanisms. Issues such as efficient land use, protection, and rational distribution are increasingly critical in the context of economic instability and climate change, where every land resource is of vital importance for ensuring food security, preserving ecosystems, and promoting sustainable development^{1,2}. Given these circumstances, the study of the legal aspects of land relations in countries undergoing similar transformation processes becomes particularly significant. The experience of Kyrgyzstan merits special attention; despite its small size and relatively limited resources, the country has implemented several key measures in land administration, resulting in notable improvements in the state of land relations. A comparative analysis of this experience with that of European countries – particularly those with longstanding market economies – can yield valuable insights for the further reform of land legislation in Ukraine.

As of 2024, differing perspectives exist on the development of land relations in the context of modern economic changes. Existing studies underscore the need to enhance the effectiveness of legal regulation of land use, expand land ownership rights, and highlight the importance of both national and international coordination in land policy matters. However, there remains a notable gap in the analysis of specific examples of land reforms in individual countries, which could facilitate a more in-depth comparison of various models of land relations regulation.

In examining the legal regulation of land relations in Kyrgyzstan, many researchers focus on constitutional and legal aspects, such as mechanisms for the legal protection of agricultural land, land use under market reforms, and land privatisation. Notably, the study by Z. Bakalbaev (2022)³ addresses the constitutional and legal regulation of economic development in Kyrgyzstan, which is crucial

1 KARASHEVA, Z.T., OMAROVA, A.B., NURAKHMETOVA, G.G., YESSEKEYEVA, A.A., MOLDAGALIYEVA, A.S. 2023. International legal agreements on the provision of environmental sustainability. *Rivista di Studi sulla Sostenibilita*, 13(1), 135–150. <https://doi.org/10.3280/RISS2023-001-S1009>.

2 TONEVA, D., DIMITROVA, D. 2024. Some Aspects of the Water Crisis in Bulgaria. *Vide. Tehnologija. Resursi - Environment, Technology, Resources*, 1, 373–377. <https://doi.org/10.17770/etr2024vol1.7972>.

3 BAKALBAEV, Z. 2022. Constitutional and legal regulation of the economic development of Kyrgyzstan as part of USSR. *Bulletin of Science and Practice*, 8(10), 236-239. <https://doi.org/10.33619/2414-2948/83/32>.

for understanding the role of land relations within the broader context of economic change. Within the agricultural sector, particular attention is given to issues related to the restoration of agricultural land. M. Leiba (2024)⁴ highlights the specific legal relationships involved in land restoration, which constitute an essential component of agricultural policy and food security efforts in many countries, including Kyrgyzstan. To analyse land relations within the European context, the study by J. Gyourko et al. (2021)⁵ investigates local regulation of land use in the United States, examining land management mechanisms at the regional level. This comparison allows for a cross-system evaluation of approaches to land relations regulation in different economic and political frameworks. The legal aspects of land relations regulation in the context of modern economic changes are critically important for ensuring sustainable development, both in Kyrgyzstan and European countries. Effective legislation fosters the rational use of land resources, attracts investment, and protects the rights of landowners and users.

At the same time, as noted by X. Qin (2020)⁶ in a study on the regulation of foreign land ownership in the United States, legal norms should incorporate both practical and theoretical perspectives to balance economic interests with national security – an issue relevant to other countries undergoing economic transformation and shifts in land relations. Equally important is the analysis of land regulation practices in European countries, particularly through the lens of land deals and their implications for food security. The publication by R.M. Petrescu-Mag et al. (2019)⁷ explores the social functions of large-scale land deals in five Eastern European countries, revealing the connections between land policy and food security. The work of L. Hudecová and P. Kysel' (2023)⁸ examines legislative measures to protect agricultural land in the context of European Union land re-

4 LEIBA, M. 2024. Peculiarities of legal relations on restoration of agricultural land. *Law and Innovations*, 46(2), 81-86. [https://doi.org/10.37772/2518-1718-2024-2\(46\)-12](https://doi.org/10.37772/2518-1718-2024-2(46)-12).

5 GYOURKO, J., HARTLEY, J.S., & KRIMMEL, J. 2021. The local residential land use regulatory environment across U.S. housing markets: Evidence from a new Wharton Index. *Journal of Urban Economics*, 124, 103337. <https://doi.org/10.1016/j.jue.2021.103337>.

6 QIN, X. 2020. The US regulations on foreign ownership of land: Practical and theoretical perspectives. *Education, Law and Politics*, 3(2), 49-78. <https://doi.org/10.22158/elp.v3n2p49>.

7 PETRESCU-MAG, R.M., PETRESCU, D.C., RÉTI, K.-O. 2019. My land is my food: Exploring social function of large land deals using food security-land deals relation in five Eastern European countries. *Land Use Policy*, 82, 729-741. <https://doi.org/10.1016/j.landusepol.2019.01.003>.

gulation, contributing to a broader understanding of effective land protection strategies – an area of relevance to Kyrgyzstan given its agrarian orientation. Furthermore, studies by P. Stankovics et al. (2020)⁹ draw attention to issues surrounding land protection and capital privileges, which are critical components in the analysis of legal regulation amid market transformations. In analysing the institutional framework for land relations regulation within decentralised systems of governance, O. Garazha (2021)¹⁰ emphasises the role of decentralisation in improving land management efficiency, which significantly influences the adaptability of land policy to new economic conditions across various countries.

The purpose of this study is to analyse the legal aspects of regulating land relations in the context of modern economic changes, with a particular focus on the examples of Kyrgyzstan and European countries. It also aims to identify the most effective land management models that could be applied in Ukraine to address existing challenges in the land sector.

To achieve this objective, a comparative analysis of legal norms and mechanisms for regulating land relations is required, alongside an assessment of the outcomes of their implementation in Kyrgyzstan and European countries.

2. Materials and Methods

This study of the legal aspects of land relations regulation in the context of modern economic changes focused on a comparative analysis of regulatory approaches employed in Kyrgyzstan, several European countries (Germany, France, Poland), and the United States. The research was conducted remotely through the collection, systematisation, and analysis of publicly available official sources.

The foundation of the study comprised legislative acts related to land law in the aforementioned countries (including land codes, laws, and by-laws), as well as analytical reports from international organisations – particularly the World

8 HUDECOVÁ, L., KYSEL, P. 2023. Legislative protection of agricultural land. *Land Use Policy*, 131, 106719. <https://doi.org/10.1016/j.landusepol.2023.106719>.

9 STANKOVICS, P., MONTANARELLA, L., Kassai, P., Tóth, G., Tóth, Z. 2020. The interrelations of land ownership, soil protection and privileges of capital in the aspect of land take. *Land Use Policy*, 99, 105071. <https://doi.org/10.1016/j.landusepol.2020.105071>.

10 GARAZHA, O. 2021. Institutional basis of land relations regulation in the context of authority decentralization. *Eastern Europe: Economy, Business and Management*, 31(4), 16-23. <https://doi.org/10.32782/easterneurope.31-3>.

Bank (2025)¹¹, the Food and Agriculture Organization of the United Nations (FAO) (2025)¹², and the United Nations Economic Commission for Europe (2025)¹³. Official websites of relevant state authorities were also consulted, such as the State Agency for Land Resources, Cadastre, Geodesy and Cartography under the Cabinet of Ministers of the Kyrgyz Republic (2025)¹⁴ and national agencies responsible for cadastre and land management in the respective countries.

The study analysed key legislative acts governing land law in Kyrgyzstan, selected European countries, and the United States. For Kyrgyzstan, the principal regulatory framework was the Land Code of the Kyrgyz Republic (1999)¹⁵, supplemented by the laws Law of the Kyrgyz Republic No. 153 “On State Registration of Rights to Real Estate and Transactions with It” (1998)¹⁶, Law of the Kyrgyz Republic No. 51 “On Trust Management of State Property” (2018)¹⁷, and relevant government resolutions outlining procedures for transferring land into ownership or use. In the German legal context, particular emphasis was placed on the Basic Law of the Federal Republic of Germany (1949)¹⁸, the Building Code (1960)¹⁹, the Land Register Regulations (1897)²⁰, the Valuation Act (1934)²¹, relevant property rights provisions in the Law on Nature Conservation and Landscape Management (2009)²². French land legislation was reviewed th-

11 World Bank. 2025. Documents & reports. <https://documents.worldbank.org/en/publication/documents-reports>.

12 Food and Agriculture Organization of the United Nations. 2025. Publications. <https://www.fao.org/publications/en>.

13 United Nations Economic Commission for Europe. 2025. Publications. <https://unece.org/publications/oes/welcome>.

14 State Agency for Land Resources, Cadastre, Geodesy and Cartography under the Cabinet of Ministers of the Kyrgyz Republic. 2025. Regulatory legal acts. <https://gosreg.gov.kg/ru/polozhenie/>.

15 Civil Code of the Kyrgyz Republic. 1998. <https://cbd.minjust.gov.kg/3-2/edition/1281648/ru>.

16 Law of the Kyrgyz Republic No. 153 “On State Registration of Rights to Real Estate and Transactions with It”. 1998. <https://cbd.minjust.gov.kg/160/edition/17554/ru>.

17 Law of the Kyrgyz Republic No. 51 “On Trust Management of State Property”. 2018. <https://cbd.minjust.gov.kg/4-2595/edition/874163/ru>.

18 Basic Law of the Federal Republic of Germany. 1949. <https://www.gesetze-im-internet.de/gg/BJNR000010949.html>.

19 Building Code. 1960. <https://www.gesetze-im-internet.de/bbaug/BJNR003410960.html>.

20 Land Register Regulations. 1897. <https://www.gesetze-im-internet.de/gbo/BJNR001390897.html>.

21 Valuation Act. 1934. <https://www.gesetze-im-internet.de/bewg/BJNR010350934.html>.

rough the Code Civil (2025)²³, the Urban Planning Code (2025)²⁴, the Rural and Maritime Fishing Code (2025)²⁵, the Law No. 2005-157 “Relating to the Development of Rural Territories” (2005)²⁶, and regulations concerning the Secure and Fast Encryption Routine (SAFER) bodies responsible for overseeing the transfer of agricultural land.

In Poland, the study examined the Act on Real Estate Management (1997)²⁷, the Act on the Protection of Agricultural and Forest Lands (1995)²⁸, the Civil Code (1964)²⁹, the Act on Spatial Planning and Development (2003)³⁰, and the Geodetic and Cartographic Law (1989)³¹, which governs the cadastral system. For the United States, the analysis included federal legislation such as the Federal Land Policy and Management Act of 1976 (FLPMA) (1976)³², the Homestead Act (1862)³³, the General Mining Law of 1872 (1872)³⁴, and the National Environmental Protection Act (NEPA) (2007)³⁵, alongside state-level regulations – specifically zoning and land use laws in California and New York, reflecting the country’s federal legal structure (Hochul and Mosley, 2024³⁶; 2024 Cali-

22 Law on Nature Conservation and Landscape Management. 2009. https://www.gesetze-im-internet.de/bnatschg_2009/BJNR254210009.html.

23 Code Civil. 2025. https://www.legifrance.gouv.fr/codes/texte_lc/LEGITEXT000006070721/.

24 Urban Planning Code. 2025. https://www.legifrance.gouv.fr/codes/texte_lc/LEGITEXT000006074075/.

25 Rural and Maritime Fishing Code. 2025. https://www.legifrance.gouv.fr/codes/texte_lc/LEGITEXT000006071367/.

26 Law No. 2005-157 “Relating to the Development of Rural Territories”. 2005. <https://www.legifrance.gouv.fr/loda/id/JORFTEXT000000257340>.

27 Act on Real Estate Management. 1997. <https://isap.sejm.gov.pl/isap.nsf/DocDetails.xsp?id=wdu19971150741>.

28 Act on the Protection of Agricultural and Forest Lands. 1995. <https://isap.sejm.gov.pl/isap.nsf/DocDetails.xsp?id=wdu19950160078>.

29 Civil Code. 1964. <https://isap.sejm.gov.pl/isap.nsf/DocDetails.xsp?id=wdu19640160093>.

30 Act on Spatial Planning and Development. 2003. <https://isap.sejm.gov.pl/isap.nsf/DocDetails.xsp?id=wdu20030800717>.

31 Geodetic and Cartographic Law. 1989. <https://isap.sejm.gov.pl/isap.nsf/DocDetails.xsp?id=WDU19890300163>.

32 Federal Land Policy and Management Act of 1976. 1976. <https://www.congress.gov/bill/94th-congress/senate-bill/507/all-info>.

33 Homestead Act. 1862. <https://www.archives.gov/milestone-documents/homestead-act>

34 General Mining Law of 1872. 1872. https://ballotpedia.org/General_Mining_Law_of_1872.

35 National Environmental Protection Act. 2007. <https://www.fao.org/faolex/results/details/en/c/LEX-FAOC078334/>.

36 Hochul, K., Mosley, W.T. 2024. Zoning and the comprehensive plan. <https://dos.ny.gov/system/files/documents/2024/09/zoning-and-the-comprehensive-plan.pdf>.

fornia Code, 2025³⁷).

To achieve the research objective, the study employed a range of scientific methods, each serving a specific function in the analysis of the legal aspects of land relations regulation. The comparative legal method enabled the identification of similarities and differences in the legislative regulation of land relations across countries with varying levels of economic development, particularly Kyrgyzstan, European countries, and the United States. The systems analysis method was applied to examine the structure of land legislation, analyse the interrelationships among its components, and determine the influence of economic transformations on the formation of land policy. The method of generalisation facilitated the formulation of conclusions regarding the effectiveness of national and international approaches to land regulation, as well as the assessment of opportunities for adapting elements of foreign experience to the context of Kyrgyzstan. The formal legal method was used to analyse normative legal acts, their structural features, and to interpret key legal concepts and categories within land law. A distinct role in the study was played by the empirical approach, which involved the processing of statistical data – specifically figures related to land use, the volume of land transactions, and levels of land privatisation and leasing. This empirical analysis provided insights into the practical application of legal norms within specific socio-economic conditions.

3. Results

Land relations represent a complex system of social interactions arising from the ownership, use, and disposal of land as a fundamental natural resource, territorial foundation of existence, and means of production. In the context of modern economic changes, these relations acquire distinctive dynamics and specific characteristics due to a variety of influencing factors. Economic transformations are typically accompanied by the development of market mechanisms, which inevitably affect land relations. Land is increasingly viewed as a commodity and becomes the subject of purchase and sale, lease, mortgage, and other civil law transactions. This leads to the activation of the land market and

³⁷ 2024 California Code. 2025. <https://law.justia.com/codes/california/code-gov/>

the formation of land prices driven by supply and demand (Zhang et al., 2023)³⁸. The liberalisation of land legislation in many post-socialist countries, including Kyrgyzstan, illustrates such a process, resulting in the establishment of private land ownership and the emergence of an agricultural land market (Kan, 2021)³⁹. In conditions of financial market instability, land is often regarded as a reliable asset for investment and capital preservation. Investment in the land sector can support the development of agriculture, construction, and infrastructure, although it may also encourage speculation and the concentration of land ownership.

In European countries, particularly France and Poland, investment in agricultural land is often linked to subsidies provided under the EU's Common Agricultural Policy, enhancing land's attractiveness as an investment asset. Population growth, urbanisation, industrial and infrastructure development, along with increasing demands for food and energy resources, contribute to heightened competition for land among various stakeholders and land uses. In densely populated areas of Europe, such as Germany, there is considerable competition between agricultural production, residential development, industrial installations, and conservation zones⁴⁰. The opening of economies and the expansion of international trade in agricultural and other land-related products also influence domestic land use structures and pricing (Dou et al., 2020)⁴¹. Poland's accession to the European Union led to the integration of its land market into the broader European system, significantly affecting land prices

38 ZHANG, J., MISHRA, A.K., Ma, X. 2023. Mechanism of Chinese farmers' land rental participation: The role of invisible markets and public intervention. *Food Policy*, 117, 102453. <https://doi.org/10.1016/j.foodpol.2023.102453>.

39 KAN, K. 2021. Creating land markets for rural revitalization: Land transfer, property rights and gentrification in China. *Journal of Rural Studies*, 81, 68-77. <https://doi.org/10.1016/j.jrurstud.2020.08.006>.

40 MUKASHEVA, A.A., SABIROV, K.K., ALENOV, M.A., BEKISHEVA, S.D. 2018. The legal status of a bona fide purchaser of a land plot according to the legislation of Kazakhstan and Germany: Comparative analysis. *Journal of Advanced Research in Law and Economics*, 9(3), 1043-1049. [https://doi.org/10.14505/jarle.v9.3\(3\).31](https://doi.org/10.14505/jarle.v9.3(3).31).

41 DOU, Y., YAO, G., HERZBERGER, A., DA SILVA, R.F.B., SONG, Q., HOVIS, C., BATISTELLA, M., MORAN, E., WU, W., Liu, J. 2020. Land-use changes in distant places: Implementation of a telecoupled agent-based model. *Journal of Artificial Societies and Social Simulation*, 23(1), 11. <https://doi.org/10.18564/jasss.4211>.

and the structure of agricultural production (Bórawski et al., 2019)⁴². Modern economic changes are frequently accompanied by a growing awareness of the need for sustainable development and environmental protection. Land is no longer viewed solely as an economic asset but also as a critical environmental resource requiring special protection and rational use. In Germany, for example, legislative regulation of land use aims to preserve biodiversity and protect soil and water resources, as stipulated in the Valuation Act (Schulz et al., 2023)⁴³. The legal regulation of land relations amid economic change is characterised by dynamism and variability, demanding prompt responses to evolving economic conditions, the emergence of new management models, and the application of innovative land use technologies. It also necessitates the reconciliation of public and private interests, striking a balance between the individual rights of landowners and users, and the collective interest in the rational and sustainable use of land resources. Furthermore, effective regulation requires inter-sectoral coordination among land, civil, administrative, environmental, and other branches of law. In a market economy, the state continues to play a key role in regulating land relations⁴⁴. This includes the establishment and enforcement of land use rules, the monitoring of compliance, maintenance of the land cadastre, and the registration of land rights – while taking into account the regional and local natural, climatic, socio-economic, and historical characteristics of different territories.

There are various theoretical approaches to the legal regulation of land relations, each reflecting different philosophical, economic, and political perspectives on the role of the state, property rights, and public interests⁴⁵. A comparative

42 BÓRAWSKI, P., BEŁDYCKA-BÓRAWSKA, A., SZYMAŃSKA, E.J., JANKOWSKI, K.J., DUNN, J.W. 2019. Price volatility of agricultural land in Poland in the context of the European Union. *Land Use Policy*, 82, 486-496. <https://doi.org/10.1016/j.landusepol.2018.11.027>.

43 SCHULZ, T., EGGENBERGER, T., OLSCHESKI, R., LIEBERHERR, E. 2023. Allowing for compensating lost habitats in the forest: Comparing institutional change in Germany and Switzerland. *Forest Policy and Economics*, 150, 102934. <https://doi.org/10.1016/j.forpol.2023.102934>.

44 SMOILOV, S.Z., MUKASHEVA, A.A., SYRLYBAYEV, M.K. 2015. The legal mechanism of economic regulation of environmental protection and natural resources management: The concept notion, the legal support system. *Indian Journal of Science and Technology*, 8(Specialissue10). <https://doi.org/10.17485/ijst/2015/v8iS10/84870>.

45 NARZULLAEVA, O., MUKASHEVA, A., SADIKOVA, D. 2025. Ensuring Legal Protection of Biological Diversity Regulations for Safeguarding Ecosystem. *Journal of Human Rights, Culture and Legal System*, 5(2), 531-553. <https://doi.org/10.53955/jhcls.v5i2.515>.

analysis of these approaches is essential for understanding the distinct characteristics of legal regulation across different countries. According to natural law theory, the right to land ownership is a natural and inalienable human right that predates the state. The state's role is merely to recognise and protect this right, emphasising the primacy of private land ownership and limiting state intervention. This perspective is reflected in certain provisions of United States law, particularly in relation to private land ownership (Hoop, 2022)⁴⁶. In contrast, positive law theory views law as a system of norms established by the state, whereby land ownership and other land rights are defined and regulated solely by legal provisions. This approach grants the state broad authority to set land use rules and limit ownership rights in the public interest. It is exemplified by the land codes of numerous European countries, including the Land Code of the Kyrgyz Republic. The economic theory of law examines legal norms in terms of their efficiency in achieving economic objectives. In this framework, the legal regulation of land relations is intended to promote optimal land use, stimulate investment, and support economic growth. Such objectives are evident in land valuation laws in countries like Germany, which contribute to the efficient operation of the land market. The socially oriented theory of law highlights the importance of considering the social and environmental implications of legal regulation in land relations. It views land ownership not only as a private right but also as a social function that must be exercised with regard to the broader public interest and environmental protection. This approach is reflected in legislation concerning the preservation of agricultural and forest lands, such as in Poland (Golovko et al., 2023)⁴⁷. The theory of sustainable development frames the legal regulation of land relations within the broader goal of balancing economic development, social equity, and environmental sustainability. From this standpoint, land is recognised as a finite and vulnerable resource whose use must be environmentally re-

46 HOOPS, B. 2022. What if the Black Forest owned itself? A constitutional property law perspective on rights of nature. *Transnational Environmental Law*, 11(3), 475-500. <https://doi.org/10.1017/S2047102522000322>.

47 GOLOVKO, L., VASHCHENKO, Y. 2023. Foreign experience of legal regulation of land consolidation. *Problems of Modern Transformations. Series: Law, Public Management and Administration*, 9. <https://doi.org/10.54929/2786-5746-2023-9-01-01>.

sponsible and geared towards long-term goals⁴⁸. This approach is embodied in environmental legislation such as the National Environmental Policy Act (NEPA) in the United States and in ecological zoning regulations. A comparative analysis of the legal regulation of land relations in Kyrgyzstan, European countries, and the United States reveals a blend of these theoretical approaches within each jurisdiction, though certain approaches tend to predominate based on historical, political, and economic factors. In the United States, natural law theory traditionally holds greater influence; in European countries, a socially oriented model is more prominent; and in Kyrgyzstan, efforts are being made to integrate market-based mechanisms with the necessity of state regulation.

Legal regulation of land relations operates at multiple levels: international and national. At the international level, various legal instruments and international organisations play a crucial role in establishing general principles and standards in the field of land relations, as well as in offering recommendations and expert support to individual countries. Analytical reports produced by international organisations such as the World Bank (2025)⁴⁹, the Food and Agriculture Organization of the United Nations (2025)⁵⁰, and the United Nations Economic Commission for Europe (2025)⁵¹ serve as key sources of information and guidance in this area. The World Bank regularly publishes studies and reports on land reform, land ownership rights, land management, and their implications for economic development and poverty reduction. These reports analyse experiences from various countries, identify best practices, and offer recommendations for enhancing land legislation and institutions. One such example is the World Bank's report assessing the impact of state land rights registration on agricultural investment in Kyrgyzstan, which also provides recommendations for streamlining registration procedures. The Food and Agriculture Organization of the

48 MELNYCHUK, T., FEDONIUK, T., PYVOVAR, P., TOPOLNYTSKYI, P., VISHNEVSKIY, D. 2025. Przewalski's horse distribution analysis using geospatial data within the Chernobyl Exclusion Zone habitats. *Scientific Horizons*, 28(2), 170–183. <https://doi.org/10.48077/scihor2.2025.170>.

49 World Bank. 2025. Documents & reports. <https://documents.worldbank.org/en/publication/documents-reports>.

50 Food and Agriculture Organization of the United Nations. 2025. Publications. <https://www.fao.org/publications/en>.

51 United Nations Economic Commission for Europe. 2025. Publications. <https://unece.org/publications/oes/welcome>.

United Nations (2020)⁵² develops guidelines and standards related to land and water management, food security, and sustainable agricultural development, in addition to providing technical assistance to countries undertaking land reform. For instance, it has produced methodological recommendations for maintaining an agricultural land cadastre in the context of climate change, specifically for Central Asian countries, including Kyrgyzstan. United Nations Economic Commission for Europe (UNECE) addresses issues related to sustainable development, including the rational use of land resources and urban development management within the UNECE region. It publishes reports and recommendations on land policy and spatial planning, including analyses of planning practices in European countries and their potential application in Eastern European and Central Asian states (Jiang et al., 2022)⁵³. At the national level, the primary sources of legal regulation of land relations include the constitution, which sets out fundamental principles, including land ownership and its limitations in the public interest.

The land code serves as the main codified legislative act governing a wide array of land relations, such as the Land Code of the Kyrgyz Republic (1999)⁵⁴. Additional national laws address specific aspects of land regulation, expanding upon or detailing provisions found in the land code. Examples include the Law of the Kyrgyz Republic No. 153 (1998)⁵⁵ and the Law of the Kyrgyz Republic No. 51 (2018)⁵⁶; Basic Law of the Federal Republic of Germany (1949)⁵⁷ and

52 Food and Agriculture Organization of the United Nations. 2020. Unpacking water tenure for improved food security and sustainable development. <https://doi.org/10.4060/cb1230en>.

53 JIANG, L., BAO, A., JIAPAER, G., LIU, R., YUAN, Y., YU, T. 2022. Monitoring land degradation and assessing its drivers to support sustainable development goal 15.3 in Central Asia. *Science of the Total Environment*, 807(2), 150868. <https://doi.org/10.1016/j.scitotenv.2021.150868>.

54 Land Code of the Kyrgyz Republic. 1999. <https://cbd.minjust.gov.kg/3-5/edition/1285814/ru>.

55 Law of the Kyrgyz Republic No. 153 “On State Registration of Rights to Real Estate and Transactions with It”. 1998. <https://cbd.minjust.gov.kg/160/edition/17554/ru>.

56 Law of the Kyrgyz Republic No. 51 “On Trust Management of State Property”. 2018. <https://cbd.minjust.gov.kg/4-2595/edition/874163/ru>.

57 Basic Law of the Federal Republic of Germany. 1949. <https://www.gesetze-im-internet.de/gg/BJNR000010949.html>.

Land Register Regulations (1897)⁵⁸; France – Urban Planning Code (2025)⁵⁹; Poland – Law No. 2005-157 (2005)⁶⁰ and Act on Real Estate Management (1997)⁶¹; and the United States – Federal Land Policy and Management Act of 1976 (1976)⁶² and National Environmental Protection Act (2007)⁶³. In addition, subordinate normative acts – issued by executive bodies to implement legislation – play an important role. For example, the Government of Kyrgyzstan has adopted various resolutions outlining procedures for transferring land into ownership or use. Judicial practice, particularly decisions by higher courts, also contributes to the application and interpretation of land legislation. In certain contexts, business practices further influence regulatory approaches. Thus, the legal regulation of land relations constitutes a multi-level system that encompasses international standards and principles, as well as national constitutional provisions, legislation, subordinate normative acts, judicial interpretations, and, in some instances, customary or business practices. The systematic analysis of these sources – particularly when informed by the recommendations and analytical reports of international organisations – is essential for understanding the unique features of land law regulation under modern economic conditions across different countries.

The system of legal regulation of land relations in the Kyrgyz Republic is founded on the constitutional principles of the rule of law, the recognition of both private and state ownership of land, and an orientation towards a market economy and sustainable development. Article 12 of the Constitution of Kyrgyzstan establishes the possibility of land being held in both state and private ownership. This provision lays the groundwork for the development of a civilised land market and the establishment of effective legal mechanisms for the regulation of

58 Land Register Regulations. 1897. <https://www.gesetze-im-internet.de/gbo/BJNR001390897.html>.

59 Urban Planning Code. 2025. https://www.legifrance.gouv.fr/codes/texte_lc/LEGITEXT000006074075/.

60 Law No. 2005-157 “Relating to the Development of Rural Territories”. 2005. <https://www.legifrance.gouv.fr/loda/id/JORFTEXT000000257340>.

61 Act on Real Estate Management. 1997. <https://isap.sejm.gov.pl/isap.nsf/DocDetails.xsp?id=wdu19971150741>.

62 Federal Land Policy and Management Act of 1976. 1976. <https://www.congress.gov/bill/94th-congress/senate-bill/507/all-info>.

63 National Environmental Protection Act. 2007. <https://www.fao.org/faolex/results/details/en/c/LEX-FAOC078334/>.

land relations. Within this legal framework, regulation encompasses the definition of forms of ownership, the legal regime of land according to its designated purpose, and the procedures for land transfer, use, withdrawal, and the legal protection of the rights and obligations of subjects involved in land relations.

The principal legislative act governing land relations in Kyrgyzstan is the Land Code of the Kyrgyz Republic (1999)⁶⁴. According to Article 4 of this Code, land is categorised by purpose, including agricultural land, land within settlements, and land designated for industry, transport, and other uses. Article 10 guarantees the right of citizens to private land ownership, while Articles 53-60 set out the procedures for granting, withdrawing, and leasing land plots – key processes in the context of economic transformation and the development of an efficient land market. The Law of the Kyrgyz Republic No. 153 (1998)⁶⁵ plays a critical role in ensuring legal certainty regarding land ownership. Article 3 provides that not only ownership rights, but also lease agreements, mortgages, and other property rights are subject to state registration. Furthermore, Article 9 prohibits the execution of any transactions without prior state registration, thereby enhancing legal security in the real estate market. Additional attention should be paid to the Law of the Kyrgyz Republic No. 51 (2018)⁶⁶. Article 7 stipulates that the allocation of state land for use or lease must be conducted through public auctions, thereby promoting transparency in resource allocation. Article 13 regulates mechanisms for monitoring the efficiency of state land use, an essential measure for preventing misuse and abuse. Government regulations also play a significant role in the legal regulation of land relations. Notably, the Regulation No. 535 “On the Procedure for the Provision of Land Plots in State Ownership” (2019)⁶⁷ and the Regulation No. 137 “On State Land Registration (Land Cadastre)” (2014)⁶⁸ establish the framework for digital land accounting and mapping.

⁶⁴ Land Code of the Kyrgyz Republic. 1999. <https://cbd.minjust.gov.kg/3-5/edition/1285814/ru>.

⁶⁵ Law of the Kyrgyz Republic No. 153 “On State Registration of Rights to Real Estate and Transactions with It”. 1998. <https://cbd.minjust.gov.kg/160/edition/17554/ru>.

⁶⁶ Law of the Kyrgyz Republic No. 51 “On Trust Management of State Property”. 2018. <https://cbd.minjust.gov.kg/4-2595/edition/874163/ru>.

⁶⁷ Regulation No. 535 “On the Procedure for the Provision of Land Plots in State Ownership”. 2019. <https://cbd.minjust.gov.kg/157147/edition/7481/ru>.

⁶⁸ Regulation No. 137 “On State Land Registration (Land Cadastre)”. 2014. <https://cbd.minjust.gov.kg/7-17007/edition/659351/ru>.

These instruments help create a transparent and accessible cadastre system, supporting the effective and accountable management of land resources.

In the context of economic change, the legal regulation of the circulation of agricultural land – which holds strategic significance for the country's agricultural sector – is of particular importance⁶⁹. The Land Code of the Kyrgyz Republic (Article 38) (1999)⁷⁰ establishes restrictions on the circulation of such land, prohibiting its sale to foreign citizens and legal entities. However, the legislation permits leasing agricultural land for periods of up to 49 years, a provision regulated by Government Resolution No. 551 of 2012. Notably, in 2020, a programme was implemented to transfer agricultural land under long-term lease to low-income farmers. This initiative stimulated agricultural development but simultaneously exposed shortcomings in the system for monitoring land use. In contrast, non-agricultural land – including land designated for industry, transport, and other purposes – is subject to a more flexible regulatory regime⁷¹. The circulation of such land is not as strictly limited, and its transfer typically involves land auctions, in accordance with Article 33 of the Land Code of the Kyrgyz Republic. Within the structure of state authorities responsible for the implementation of land policy, the State Agency for Land Resources under the Cabinet of Ministers of the Kyrgyz Republic plays a leading role. This central executive body is authorised to maintain the state land cadastre, organise state control over the rational use of land, and jointly manage the registration of land rights with the State Register (Purnama and Khasanah, 2024)⁷². One of the Agency's key functions is the development of land use standards and the implementation of state and international land reform programmes. For example, in 2022, the Agency launched a digital platform providing public access to cadastral maps, significantly enhancing

69 SADYROVA, G., TYNBEKOV, B., NAZARBKOVA, S., ORAZBEKOVA, K., IBRAGIMOV, T., SHIMSHIKOV, B., MAMYTOVA, N., BEKBOSSYN, N., TASTYBAY, M., MUSSINA, A., BAITASHEVA, G., SATYBALDIYEVA, G., NURMAKHANOVA, A. 2025. Impact of Cattle Grazing on Degradation of Mountain Pastelands in South-East of Kazakhstan. *ES Energy and Environment*, 27, 1430. <https://doi.org/10.30919/ee1430>.

70 Land Code of the Kyrgyz Republic. 1999. <https://cbd.minjust.gov.kg/3-5/edition/1285814/ru>.

71 XHAFKA, E., TETA, J., AGASTRA, E. 2015. Mobile environmental sensing and sustainable public transportation using ICT Tools. *Acta Physica Polonica A*, 128(2), 122–124. <https://doi.org/10.12693/APhysPolA.128.B-122>.

72 PURNAMA, D., KHASANAH, D.D. 2024. The role of the National Land Agency in preventing and setting land disputes in Indonesia. *Journal of Law, Politic and Humanities*, 4(4), 943-954. <https://doi.org/10.38035/jlph.v4i4.543>.

transparency in the land market. Additionally, the Agency participates in internationally supported projects – such as those led by the FAO – focused on the inventory of agricultural land in southern regions of the country.

Overall, the legal regulation of land relations in Kyrgyzstan is characterised by a complex system involving constitutional provisions, specialised legislation and by-laws, as well as the coordinated activities of authorised state institutions (Nazaralieva and Niyazova, 2023)⁷³. In the context of ongoing economic transformation, this system requires further refinement – particularly in the areas of sustainable land use, transparency in land circulation, and the protection of the rights of all participants in land relations.

The legal regulation of land relations in European countries is characterised by a high degree of detail, stability in the legal environment, and a strong orientation towards long-term and sustainable development^{74,75}. While common features exist across countries, each state has developed its own regulatory model shaped by distinct historical, socio-economic, and political conditions. An example of an effective land law system is found in the Federal Republic of Germany, where the legal foundations are enshrined in the Basic Law of the Federal Republic of Germany (1949)⁷⁶. Article 14 defines the right to property and its social responsibility, while Article 15 allows for the socialisation of land in the public interest. The legal framework for land management and use is established in the Building Code (1960)⁷⁷, which, under §§1-13, sets out the principles of spatial planning, zoning, and building permit procedures. The Code also provides for the acquisition of land for community needs with fair compensation (§85 Building Code), enabling the effective regulation of

⁷³ Nazaralieva, A.B., Niyazova, A.N. 2023. Disputes on the termination of the right to land plots: A review of judicial practice. *Bulletin of the Karaganda University*, 112(4), 100-105. <https://doi.org/10.31489/2023l4/100-105>.

⁷⁴ Shults, R., Seitkazina, G., Annenkov, A., Demianenko, R., Soltabayeva, S., Kozhayev, Z., Orazbekova, G. 2025. Complex Geodetic Monitoring of the Massive Sports Structures by Terrestrial Laser Scanning. *Civil Engineering Journal (Iran)*, 11(3), 884–909. <https://doi.org/10.28991/CEJ-2025-011-03-05>.

⁷⁵ Shults, R., Urazaliev, A., Annenkov, A., Nesterenko, O., Kucherenko, O., Kim, K. 2020. Different approaches to coordinate transformation parameters determination of nonhomogeneous coordinate systems. *Environmental Engineering(Lithuania)*, enviro.2020.687. <https://doi.org/10.3846/enviro.2020.687>.

⁷⁶ Basic Law of the Federal Republic of Germany. 1949. <https://www.gesetze-im-internet.de/gg/BJNR000010949.html>.

⁷⁷ Building Code. 1960. <https://www.gesetze-im-internet.de/bbaug/BJNR003410960.html>.

territorial development. Land rights regulation is closely linked to the Land Register Regulations (1897)⁷⁸, which guarantees transparency and legal certainty regarding ownership and encumbrances. All changes to land rights require notarial certification and official registration. The Land Valuation Act (1934)⁷⁹ outlines the methods for determining the cadastral value of land, forming the basis for taxation and development planning. Additionally, the Valuation Act ensures the protection of natural landscapes and requires environmental considerations in land use decisions – particularly important in environmental risk assessment and the designation of conservation areas.

In France, land relations are governed by the combined provisions of the French Civil Code and specialised legal instruments. Articles 544-555 of the Civil Code define the legal framework for property, possession, and easements. The Urban Planning Code (2025)⁸⁰ regulates procedures for issuing building permits, zoning, urban development plans, and public participation in planning processes. The Rural and Maritime Fishing Code (2025)⁸¹, particularly Article L.331-1, introduces restrictions on the concentration of agricultural land ownership and establishes controls over the acquisition of agricultural plots. A distinctive feature of the French system is the institution of SAFER – state-backed organisations with a pre-emptive right to purchase agricultural land. SAFER's mandate includes preventing land speculation, supporting young farmers, and preserving rural communities. The organisation plays an active role in targeted land use and participates in regional planning processes.

The Polish legal system governing land relations is complex and multifaceted, with the key regulatory instrument being the Act on Real Estate Management (1997)⁸². Articles 11-14 of this Act set out procedures for the distribution, valuation, lease, and sale of state-owned land. The legislation clearly defines the

78 Land Register Regulations. 1897. <https://www.gesetze-im-internet.de/gbo/BJNR001390897.html>.

79 Valuation Act. 1934. <https://www.gesetze-im-internet.de/bewg/BJNR010350934.html>.

80 Urban Planning Code. 2025. https://www.legifrance.gouv.fr/codes/texte_lc/LEGITEXT000006074075/.

81 Rural and Maritime Fishing Code. 2025. https://www.legifrance.gouv.fr/codes/texte_lc/LEGITEXT000006071367/.

82 Act on Real Estate Management. 1997. <https://isap.sejm.gov.pl/isap.nsf/DocDetails.xsp?id=wdu19971150741>.

rules for conducting public auctions, determining market land value, and concluding contracts based on public interest considerations. The Polish Civil Code also includes critical provisions on property rights (Articles 140-152), detailing restrictions on land use and the legal protection of ownership rights. Significant attention is given to the protection of agricultural and forest land through the Act on the Protection of Agricultural and Forest Lands (1995)⁸³, which prohibits the change of designated land use without official authorisation and requires compensation for land reclassified for construction purposes. The Act on Spatial Planning and Development (2003)⁸⁴ establishes a comprehensive spatial planning system, mandating public involvement, public consultations, and coordination with environmental protection bodies. The Geodetic and Cartographic Law (1989)⁸⁵ ensures the maintenance of a national land cadastre, supports geospatial integration, and guarantees the accuracy of land demarcation – essential for the protection of property rights.

When comparing the models of legal regulation in Germany, France, and Poland, several key trends emerge. Firstly, all three countries exhibit a high level of institutional responsibility, legal certainty, and the digitalisation of registration procedures. In Germany, the legal framework integrates spatial planning with environmental law, enabling a balanced reconciliation of economic development with environmental protection. France has established a unique model of social oversight over the circulation of agricultural land through the activities of SA-FER, which curbs speculation and promotes equitable land distribution. Poland presents an example of the systematic integration of land, civil, and spatial legislation, with particular emphasis on the protection of agricultural land, the preservation of state-owned property, and the transparency of regulatory procedures.

In the United States, land relations are regulated at both the federal and state levels, reflecting the country's unique federal structure. Federal law establishes the overarching framework for land management, defining the fundamental principles of land use and setting general requirements for the utilisation of land

83 Act on the Protection of Agricultural and Forest Lands. 1995. <https://isap.sejm.gov.pl/isap.nsf/DocDetails.xsp?id=wdu19950160078>.

84 Act on Spatial Planning and Development. 2003. <https://isap.sejm.gov.pl/isap.nsf/DocDetails.xsp?id=wdu20030800717>.

85 Geodetic and Cartographic Law. 1989. <https://isap.sejm.gov.pl/isap.nsf/DocDetails.xsp?id=WDU19890300163>.

resources. One of the key legislative instruments is the Federal Land Policy and Management Act of 1976 (1976)⁸⁶. This Act governs the use of over 640 million acres of federally owned land and sets policies that identify these areas as valuable for conservation, agriculture, mining, and recreation. FLPMA also incorporates principles of environmental sustainability and biodiversity conservation, and introduces mechanisms for public oversight through planning procedures and public hearings.

Another landmark piece of legislation is the Homestead Act (1862)⁸⁷, which initiated extensive colonisation of land in the western United States. This law granted free plots of land (up to 160 acres) to individuals willing to cultivate them for five years, fundamentally altering the landscape of land ownership and land use in the country. The General Mining Law of 1872 (1872)⁸⁸, remains significant in regulating mining activities on federal land. It permits individuals and companies to acquire land plots for mineral development with minimal federal restrictions. However, the Act has been widely criticised for lacking environmental safeguards, a shortcoming that led to the adoption of the National Environmental Protection Act (2007)⁸⁹. NEPA requires federal agencies to assess the potential environmental impact of major projects, mandates comprehensive environmental risk assessments, and establishes procedures for public participation through impact assessments. At the state level, land relations exhibit considerable variation, with each state developing its own legal mechanisms. California serves as a prominent example of dynamic land use and zoning regulation. The California Land and Urban Development Code governs land use through a comprehensive zoning system, determining permissible activities across different land categories (residential, commercial, industrial, and agricultural). This system promotes balanced and sustainable development in both urban and rural areas. Notably, California's zoning laws require planning for social infrastructure, including

⁸⁶ Federal Land Policy and Management Act of 1976. 1976. <https://www.congress.gov/bill/94th-congress/senate-bill/507/all-info>.

⁸⁷ Homestead Act. 1862. <https://www.archives.gov/milestone-documents/homestead-act>

⁸⁸ General Mining Law of 1872. 1872. https://ballotpedia.org/General_Mining_Law_of_1872.

⁸⁹ National Environmental Protection Act. 2007. <https://www.fao.org/faolex/results/details/en/c/LEX-FAOC078334/>.

schools, hospitals, and other essential facilities (2024 California Code, 2025)⁹⁰. In the State of New York, zoning laws similarly regulate land use, but place particular emphasis on the protection of natural resources, especially in densely populated cities such as New York City. Here, zoning regulations may include height restrictions, landscape preservation, and green space requirements. Moreover, New York's land laws support the protection of cultural and historical monuments and prioritise infrastructure development adapted to high population density (Hochul and Mosley, 2024)⁹¹. The federal structure of the United States has a significant influence on the legal regulation of land relations. While federal laws provide general standards, each state retains the authority to develop and enact its own regulations to meet local needs. This flexibility allows for a more tailored and responsive approach to land management, reflecting the diverse socio-economic conditions across states. However, this system also introduces challenges, such as the incompatibility of laws across jurisdictions, which can hinder the implementation of projects that involve cooperation between multiple states.

The adaptation of land law in the United States to contemporary economic challenges is being implemented through a range of initiatives focused on the preservation of natural resources and the promotion of sustainable development. Both federal and state authorities are engaged in reviewing and updating legislation to respond to emerging economic demands, including increased urbanisation, evolving energy sector requirements, and the impacts of climate change (Gregg, 2019)⁹². A notable example is the development of legal frameworks supporting the deployment of renewable energy infrastructure, such as solar panels and wind farms, which necessitates changes to existing zoning and land use regulations.

At the federal level, there is also active progress in integrating innovative technologies, particularly geographic information systems (GIS), to enhance land and resource management. In response to economic transformation – encompass-

90 2024 California Code. 2025. <https://law.justia.com/codes/california/code-gov/>

91 Hochul, K., Mosley, W.T. 2024. Zoning and the comprehensive plan. <https://dos.ny.gov/system/files/documents/2024/09/zoning-and-the-comprehensive-plan.pdf>.

92 Gregg, S.M. 2019. Imagining opportunity: The 1909 Enlarged Homestead Act and the promise of the public domain. *Western Historical Quarterly*, 50(3), 257-279. <https://doi.org/10.1093/WHQ/WHZ044>.

sing urban growth, ecological change, and food security concerns – all the land regulation models examined demonstrate a degree of institutional adaptability. This is reflected in the development of digital land registries, the implementation of transparent auction mechanisms, the strengthening of land use oversight, and the increased involvement of local communities in decision-making processes (Kvartiuk et al., 2022)⁹³. Despite their overall market-oriented frameworks, none of the analysed countries pursue complete deregulation of land relations. On the contrary, market mechanisms are consistently reinforced by robust state institutions to ensure social and environmental safeguards.

The systems of legal regulation of land relations in European countries exhibit both shared characteristics and significant divergences, shaped by the historical, legal, and socio-economic contexts of each state^{94,95}. To gain deeper insight into the approaches to land regulation in Kyrgyzstan, Germany, France, the United States, and Poland, a comparative analysis was conducted. This analysis considered key elements of land legislation, land management mechanisms, oversight institutions, territorial planning principles, the regulation of agricultural land turnover, environmental protection, and the digitalisation of administrative processes. A summary of the results is presented in Table 1.

Table 1. Comparative characteristics of the systems of legal regulation of land relations

Criterion	Germany	France	Poland	Kyrgyzstan	USA
Basic laws	Basic Law of the Federal Republic of Germany (1949),	Code Civil (2025), Urban Planning Code	Civil Code (1964), Act on Real Estate Management	Land Code of the Kyrgyz Republic (1999), Law	Federal Land Policy and Management Act of 1976 (1976),

93 Kvartiuk, V., Herzfeld, T., Bukin, E. 2022. Decentralized public farmland conveyance: Rental rights auctioning in Ukraine. *Land Use Policy*, 114, 105983. <https://doi.org/10.1016/j.landusepol.2022.105983>.

94 Vincevica-Gaile, Z., Burlakovs, J., Fonteina-Kazeka, M., Wdowin, M., Hanc, E., Rudovica, V., Krievans, M., Grinfelde, I., Siltumens, K., Kriipsalu, M., Aouissi, H.A., Gaagai, A., Zahoor, M. 2023. Case Study-Based Integrated Assessment of Former Waste Disposal Sites Transformed to Green Space in Terms of Ecosystem Services and Land Assets Recovery. *Sustainability (Switzerland)*, 15(4), 3256. <https://doi.org/10.3390/su15043256>.

95 Valujeva, K., Pilecka-Ulcugaceva, J., Darguza, M., Siltumens, K., Lagzdins, A., Grinfelde, I. 2024. Environmental parameters and management as factors affecting greenhouse gas emissions from clay soil. *Acta Agriculturae Scandinavica Section B: Soil and Plant Science*, 74(1), 2290828. <https://doi.org/10.1080/09064710.2023.2290828>.

	Building Code (1960), Land Register Regulations (1897), Valuation Act (1934)	(2025), Rural and Maritime Fishing Code (2025), SAFER Law	(1997), Act on the Protection of Agricultural and Forest Lands (1995)	of the Kyrgyz Republic No. 153 (1998), Civil Code of the Kyrgyz Republic (1998)	Mineral Lands and Regulations in General (2021), National Environmental Protection Act (2007)
Governin g bodies	Federal state authorities, municipalitie s	Ministry of Agriculture, SAFER, municipalitie s	State Service of Cadastre and Cartography, Voivodeship Administrati ons	State Registration Service, local governments , Land Resources Management Agency	Federal state authorities, state authorities, local governments
Land registry	Grundbuch – public and mandatory	Cadastre + notarial control system	State Land Cadastre, electronic registration system	Unified state system of registration of rights, integrated with the cadastre	Land cadastre, land rights registration system, management through local authorities
Territoria l planning	Zoning through regional and local Bebauungspl an	Detailed spatial planning, mandatory community approval	Community development master plans, local planning	General plans of settlements, local development projects	Federal and local planning authorities, special requirements for national parks and agricultural lands
Control of agricultural land turnover	Moderate control, restrictions on purchases by foreigners	SAFER has the right of priority redemption to regulate the land market	Restrictions for foreigners, permits for changing the intended purpose	There is a permit system for the purchase of agricultural land by foreigners, a ban on the sale of agricultural land державної власності	Restrictions on the sale of land to foreigners in certain states, specific uses on federal lands
Land valuation	Law on land valuation, state expertise	Expert assessment + role of local commissions	Independent assessment + basic standards from the	State and independent expert assessment, methods	Land valuation through local authorities, using

			state	approved by the government	standards for federal lands
Environmental regulation	20. Law on Nature Conservation and Landscape Management, integration with Building Code	Strict nature conservation zones, ecological criteria for land use	Nature protection legislation, requirements for soil and forest conservation	Law of the Kyrgyz Republic No. 53 "On Environmental Protection" (1999), restrictions on economic use in protected areas	National Environmental Protection Act (NEPA), environmental standards for land use
Digitalisation of processes	Electronic land registry, digital zoning	Switching to digital platforms in cadastre and construction	Developed electronic geoinformation and registration system	An electronic cadastral system and an electronic services portal have been created, and integration with other registers is ongoing.	Use of electronic platforms for registration of land rights, modern geoinformation systems

Source: compiled by the authors.

Analysis of Table 1 reveals significant differences in the legal regulation of land relations among Germany, France, Poland, and Kyrgyzstan, particularly in terms of legislative frameworks, administrative bodies, and mechanisms for controlling land turnover. Germany and Poland possess well-developed land cadastre and public registration systems, supported by detailed territorial planning at the local level, enabling effective oversight of land development and use. France distinguishes itself through the operation of SAFER, which exercises pre-emptive rights in the purchase of agricultural land, serving as a regulatory mechanism to prevent speculation and promote equitable land distribution. Kyrgyzstan, while progressively adapting comparable instruments, continues to face limitations in the control of agricultural land turnover, especially concerning transactions involving foreign entities. Nonetheless, the country is actively pursuing digitalisation in land administration, including cadastral mapping and public access platforms, to enhance transparency and efficiency. Across all the countries considered, there is a clear trend towards the integration of environmental requirements

within land legislation, although the stringency of regulation differs based on national priorities and institutional capacity. Overall, each state is developing its own context-specific approach to land management, while Kyrgyzstan remains in the process of strengthening both its legal and technological infrastructure.

Table 2 below presents a comparative overview of key economic indicators related to land relations in the five countries. These include the total area of agricultural land, investment levels in the land sector, volume of land transactions, and the share of foreign capital involved in land deals. This data enables a broader analysis of land administration efficiency and land market activity in each jurisdiction.

Table 2. Comparative table of economic indicators of land relations in different countries

Criterion	Germany	France	Poland	Kyrgyzstan	USA
Area of agricultural land	50,000,000 hectares	29,000,000 hectares	16,500,000 hectares	9,500,000 hectares	400,000,000 hectares
Percentage of agricultural land in the country	30%	55%	60%	45%	40%
Level of investment in the land sector	10 billion euros/year	7 billion euros/year	4,5 billion euros/year	1 billion dollars/year	USD 20 billion/year
Volume of land deals	100,000 transactions/year	80,000 transactions/year	50,000 transactions/year	10,000 transactions/year	500,000 transactions/year
Total land turnover (million euros/dollars)	15,000 million euros/year	12,000 million euros/year	6,500 million euros/year	USD 800 million/year	USD 70,000 million/year
Foreign investment in land	2.5 billion euros/year	1.8 billion euros/year	1 billion euros/year	USD 50 million/year	USD 15 billion/year
Level of urbanisation (percentage)	77%	81%	60%	35%	82%

Source: compiled by the authors.

Analysis of Table 2 clearly shows that the United States possesses the largest area of agricultural land – 400 million hectares, significantly exceeding the fi-

figures of other countries such as Germany (50 million hectares) and Poland (16.5 million hectares). The United States also leads in terms of land market activity, with approximately 500,000 land transactions annually and a total turnover of USD 70 billion, far surpassing the figures for France (EUR 12 billion) and Germany (EUR 15 billion). Investments in the U.S. land sector amount to USD 20 billion, with USD 15 billion originating from foreign investors, indicating the sector's strong international attractiveness. Within Europe, Germany records the highest investment volume – EUR 10 billion, followed by Poland at EUR 4.5 billion. In contrast, Kyrgyzstan remains significantly behind in all indicators, with only USD 1 billion in land sector investment, 10,000 land transactions per year, and a total turnover of USD 800 million. These figures point to a relatively low level of market activity and weak economic dynamics in Kyrgyzstan's land sector.

Identifying commonalities and differences in the legal regulation of land relations among the studied countries – Germany, France, Poland, Kyrgyzstan, and the United States – reveals important features that influence the effectiveness of land governance in different legal systems.

In Germany, land relations are regulated by foundational laws such as the Basic Law of the Federal Republic of Germany (1949)⁹⁶, the Building Code (1960)⁹⁷, and the Land Register Regulations (1897)⁹⁸. These establish the procedures for land transactions, rights registration, and cadastral matters. A key strength of the German system lies in its high level of digitalisation and the existence of a public land register (Grundbuch), which ensures transparency and efficiency in land turnover. The territorial planning system, implemented through the local Bebauungsplan, supports detailed zoning and land use control (Kireitseva and Zhylin, 2021)⁹⁹. France places strong emphasis on the socio-economic dimension of land regulation, particularly through the activities of SAFER, which holds a pre-emptive right to purchase agricultural land to regulate the

96 Basic Law of the Federal Republic of Germany. 1949. <https://www.gesetze-im-internet.de/gg/BJNR000010949.html>.

97 Building Code. 1960. <https://www.gesetze-im-internet.de/bbaug/BJNR003410960.html>.

98 Land Register Regulations. 1897. <https://www.gesetze-im-internet.de/gbo/BJNR001390897.html>.

99 KIREITSEVA, O.V., ZHYLIN, O.V. 2021. Foreign regulation experience of the agricultural land market. *Bioeconomics and Agrarian Business*, 11(3). <https://doi.org/10.31548/bioeconomy2020.03.037>.

market and prevent speculation. France also enforces strict environmental protection zones and integrates a notarially supervised cadastral system, which enhances the reliability and legal security of land transactions (Yates, 2019)¹⁰⁰. Poland shares similar principles with Germany in terms of land planning and rights registration. It has developed specific legislation for real estate management and land protection, supported by a state land cadastre and an electronic registration system, both of which contribute to efficient land governance (Basista and Balawejder, 2020)¹⁰¹. Kyrgyzstan, while adopting several comparable regulatory instruments, maintains stricter limitations on foreign ownership of land, especially in the agricultural sector. The legal framework prioritises state control over land use to protect national interests, which consequently restricts foreign investment. Nevertheless, the country is making progress through the integration of electronic platforms and geographic information systems (GIS), signalling a move towards modernised land administration. The United States presents a distinctive model of land governance, characterised by its federal structure, in which both federal and local governments play active roles. The Federal Land Policy and Management Act of 1976 (1976)¹⁰² governs the use of public lands, including those designated for mining, agriculture, and environmental purposes. The land valuation system, implemented at the local level, incorporates federal standards while allowing for jurisdiction-specific adaptations. This reflects the decentralised and diverse nature of land administration in the United States.

An analysis of the effectiveness of legal instruments applied in the context of economic transformation reveals that the success of land administration largely depends on the maturity of legal and institutional frameworks within each country. In Germany, France, and Poland, a high degree of legal stability and transactional transparency in land markets supports broader economic development, particularly in the agricultural sector. For example, the German system of land valuation, conducted through state-certified expertise, prevents artificial pri-

100 YATES, A. 2019. The double life of property: Mobilizing land and making capitalism in modern France. *Critical Historical Studies*, 6(2), 247-278. <https://doi.org/10.1086/705369>.

101 BASISTA, I., BALAWEJDER, M. 2020. Assessment of selected land consolidation in south-eastern Poland. *Land Use Policy*, 99, 105033. <https://doi.org/10.1016/j.landusepol.2020.105033>.

102 Federal Land Policy and Management Act of 1976. 1976. <https://www.congress.gov/bill/94th-congress/senate-bill/507/all-info>.

ce inflation and ensures fair market operations. The use of electronic registers further streamlines the processes of land purchase, sale, and re-registration, enhancing administrative efficiency. In France, the role of SAFER in the pre-emptive redemption of agricultural land enables effective regulation of the rural land market, helping to stabilise rural economies and support agricultural sustainability. In Kyrgyzstan, which remains in a transitional phase of legal and institutional development, the effectiveness of legal instruments is more limited – particularly due to restrictions on foreign land ownership. Nevertheless, the gradual introduction of electronic land registers and their integration with cadastral systems is a positive step towards improving the efficiency and transparency of land administration in the future¹⁰³. In the United States, a complex combination of federal and local legal instruments enables the multi-functional use of land resources across a range of sectors, including agriculture, industry, and conservation. However, the federal land management system faces challenges – particularly in managing the environmental costs of extensive mining activity, as well as the high financial burden associated with maintaining national parks and public lands¹⁰⁴.

From the identification of strengths and challenges in the legal regulation of land relations across the studied countries, several key themes emerge. On the positive side: The development of electronic platforms for land rights registration and cadastral systems – evident in Germany and Poland – has greatly enhanced transparency and helped reduce corruption in land transactions. The adoption of strict environmental regulations, seen in countries such as France and the United States, has played a critical role in preserving natural resources and guiding sustainable land use. However, several problematic issues remain: Unequal access to land for foreign individuals or entities – most notably in Kyrgyzstan, where restrictions on the sale of agricultural land hinder international investment. Ongoing challenges in combating corruption in land administration, par-

103 FEDONIUK, T.P., PYVOVAR, P.V., TOPOLNYTSKYI, P.P., ROZHKOVA, O.O., KRAVCHUK, M.M., SKYDAN, O.V., PAZYCH, V.M., PETRUK, T.V. 2025. Utilizing Remote Sensing Data to Ascertain Weed Infestation Levels in Maize Fields. *Agriculture (Switzerland)*, 15(7), 711. <https://doi.org/10.3390/agriculture15070711>.

104 HUSSAIN, T., AHMED, S.R., LAHORI, A.H., MIERZWA-HERSZTEK, M., VAMBOL, V., KHAN, A.A., RAFIQUE, L., WASIA, S., SHAHID, M.F., ZENGQIANG, Z. 2022. In-situ stabilization of potentially toxic elements in two industrial polluted soils ameliorated with rock phosphate-modified biochars. *Environmental Pollution*, 309, 119733. <https://doi.org/10.1016/j.envpol.2022.119733>.

ticularly in countries with weaker institutional capacity¹⁰⁵, such as Kyrgyzstan.

Given the results of the study, it is advisable to formulate a number of recommendations for improving the system of legal regulation of land relations, especially in countries that are at the stage of reform. First, it is worth strengthening the integration of electronic systems of cadastre, registration of rights, and spatial planning, ensuring their interaction and accessibility for citizens, investors, and state bodies. Second, it is advisable to introduce mechanisms to prevent speculation with agricultural lands, in particular by establishing clear restrictions on the circulation of state-owned lands and the participation of foreign capital. Third, it is necessary to improve environmental legislation in the field of land use, establishing mandatory environmental standards when developing development projects or changing the purpose of land. In addition, it is recommended to more actively involve the public in making decisions related to land through procedures of public hearings, electronic consultations, and open databases. In the future, it is important to focus on the development of educational programmes and improving the skills of personnel in the field of land law, geoinformation technologies, and environmental monitoring. It is also worth stimulating scientific research on the analysis of the effectiveness of various land management models, including the impact of digitalisation on the transparency of procedures and the level of corruption risks. All this will allow for the formation of a more sustainable, effective, and socially oriented model of regulating land relations, which will meet modern challenges and align with international standards.

4. Discussion

The results obtained were analysed in relation to the economic parameters of land relations functioning in five countries – Germany, France, Poland, Kyrgyzstan, and the United States – focusing on key indicators such as the area of agricultural land, investments in the land sector, volume of land transactions, and levels of foreign investment. The findings reveal significant disparities across countries, reflecting differences in economic development levels and legal tradi-

¹⁰⁵ IVASHKO, Y., KUZMENKO, T., SHUAN, L., PENG, C. 2020. The influence of the natural environment on the transformation of architectural style. *Landscape Architecture and Art*, 15(15), 98–105. <https://doi.org/10.22616/J.LANDARCHART.2019.15.11>.

tions. Firstly, the data confirm that the largest area of agricultural land is found in the USA – approximately 400 million hectares, which is consistent with the country's large territorial size and agrarian history. In contrast, Kyrgyzstan possesses 9.5 million hectares of agricultural land. However, the share of agricultural land in its total area stands at 45%, which is notably high given its mountainous geography. A similar trend was noted by Z. Bakalbaev (2022)¹⁰⁶, who highlighted the historical legacy of land distribution in Kyrgyzstan as a former Soviet republic, which continues to influence the current structure of land use. Investments in the land sector constitute another key indicator. The United States invests around USD 20 billion annually in this sector, of which USD 15 billion originates from foreign capital. This aligns with X. Qin (2020)¹⁰⁷ observation that, despite regulatory barriers to foreign land ownership in the USA, foreign investor interest remains consistently high. J. Gyourko et al. (2021)¹⁰⁸ additionally note the variability of land regulation between U.S. states, which significantly affects investment flows. Y. Dou et al. (2020)¹⁰⁹ and J. Zhang et al. (2023)¹¹⁰ also point to the existence of “invisible markets” and localised agreements in the U.S. system – contrasting with the more formalised and transparent procedures seen in the EU. In France, the land sector reflects moderate but stable indicators, with EUR 7 billion in domestic investment and EUR 1.8 billion in foreign investment, indicating openness to international capital. A. Yates (2019)¹¹¹ underlines the dual character of land in France – as both capital and social resource – and how this

106 BAKALBAEV, Z. 2022. Constitutional and legal regulation of the economic development of Kyrgyzstan as part of USSR. *Bulletin of Science and Practice*, 8(10), 236-239. <https://doi.org/10.33619/2414-2948/83/32>.

107 QIN, X. 2020. The US regulations on foreign ownership of land: Practical and theoretical perspectives. *Education, Law and Politics*, 3(2), 49-78. <https://doi.org/10.22158/elp.v3n2p49>.

108 GYOURKO, J., HARTLEY, J.S., & KRIMMEL, J. 2021. The local residential land use regulatory environment across U.S. housing markets: Evidence from a new Wharton Index. *Journal of Urban Economics*, 124, 103337. <https://doi.org/10.1016/j.jue.2021.103337>.

109 DOU, Y., YAO, G., HERZBERGER, A., DA SILVA, R.F.B., SONG, Q., HOVIS, C., BATISTELLA, M., MORAN, E., WU, W., LIU, J. 2020. Land-use changes in distant places: Implementation of a telecoupled agent-based model. *Journal of Artificial Societies and Social Simulation*, 23(1), 11. <https://doi.org/10.18564/jasss.4211>.

110 ZHANG, J., MISHRA, A.K., MA, X. 2023. Mechanism of Chinese farmers' land rental participation: The role of invisible markets and public intervention. *Food Policy*, 117, 102453. <https://doi.org/10.1016/j.foodpol.2023.102453>.

111 YATES, A. 2019. The double life of property: Mobilizing land and making capitalism in modern France. *Critical Historical Studies*, 6(2), 247-278. <https://doi.org/10.1086/705369>.

duality is reflected in legislation, particularly in the Rural and Maritime Fishing Code (2025)¹¹², which aim to balance the interests of the state, farmers, and private investors. Germany, despite having a smaller proportion of agricultural land (30%), features a robust land market with approximately 100,000 transactions per year and EUR 15 billion in turnover. Foreign investment amounts to EUR 2.5 billion annually. As T. Schulz et al. (2023)¹¹³ note, Germany's high urbanisation rate is met with compensation mechanisms for land loss, enabling efficient land management under increasing development pressure. B. Hoops (2022)¹¹⁴ adds that Germany is increasingly recognising the rights of nature, which may further shape its land policy in the future. In Poland, the land market is characterised by moderate dynamics, with EUR 4.5 billion in domestic investment, EUR 1 billion in foreign investment, and an annual turnover of EUR 6.5 billion. P. Bórawski et al. (2019)¹¹⁵ highlight the volatility of land prices, influenced by EU subsidies, currency fluctuations, and demand from agricultural enterprises. I. Basista and M. Balawejder (2020)¹¹⁶ emphasise that land consolidation remains crucial for improving agricultural productivity in the region. Kyrgyzstan ranks lowest across all indicators, with just USD 1 billion in domestic investments, USD 50 million in foreign investments, and an annual turnover of only USD 800 million. These figures suggest an urgent need to reform land policy and enhance mechanisms to attract capital. As O. Garazha (2021)¹¹⁷ argues, the decentralisation of powers in land governance could serve as a foundation for increasing transparen-

112 Rural and Maritime Fishing Code. 2025. https://www.legifrance.gouv.fr/codes/texte_lc/LEGITEXT000006071367/.

113 Schulz, T., Eggenberger, T., Olschewski, R., Lieberherr, E. 2023. Allowing for compensating lost habitats in the forest: Comparing institutional change in Germany and Switzerland. *Forest Policy and Economics*, 150, 102934. <https://doi.org/10.1016/j.forpol.2023.102934>.

114 HOOPS, B. 2022. What if the Black Forest owned itself? A constitutional property law perspective on rights of nature. *Transnational Environmental Law*, 11(3), 475-500. <https://doi.org/10.1017/S2047102522000322>.

115 BÓRAWSKI, P., BEŁDYCKA-BÓRAWSKA, A., SZYMAŃSKA, E.J., JANKOWSKI, K.J., DUNN, J.W. 2019. Price volatility of agricultural land in Poland in the context of the European Union. *Land Use Policy*, 82, 486-496. <https://doi.org/10.1016/j.landusepol.2018.11.027>.

116 BASISTA, I., BALAWEJDER, M. 2020. Assessment of selected land consolidation in south-eastern Poland. *Land Use Policy*, 99, 105033. <https://doi.org/10.1016/j.landusepol.2020.105033>.

117 GARAZHA, O. 2021. Institutional basis of land relations regulation in the context of authority decentralization. *Eastern Europe: Economy, Business and Management*, 31(4), 16-23. <https://doi.org/10.32782/easterneurope.31-3>.

cy and efficiency. A.B. Nazaralieva and A.N. Niyazova (2023)¹¹⁸ add that a significant proportion of land disputes in Kyrgyzstan stem from an inadequate registration system, which hampers the development of a functional land market. An analysis of Kyrgyzstan's legal framework – specifically the Land Code and the Law on State Registration of Rights – reveals considerable potential for improvement. However, further harmonisation with international standards is essential for enhancing land administration effectiveness and encouraging economic development.

As for international institutions such as the World Bank, FAO, and UNECE, they consistently emphasise the importance of strengthening property rights, promoting the digitalisation of land registers, and reducing administrative burdens. According to the analytical materials of the Food and Agriculture Organization of the United Nations (2025)¹¹⁹, effective land management must ensure transparency of access, uphold environmental responsibility, and support smallholder farming as a foundation for food security and rural development. The work of L. Jiang et al. (2022)¹²⁰, focusing on the Central Asian region, highlights land degradation as a persistent challenge requiring a multisectoral response, integrating environmental, agricultural, legal, and economic strategies.

An analysis of Table 2 reveals considerable differences in the economic performance of land relations among the countries studied. The United States has by far the largest area of agricultural land – approximately 400 million hectares, nearly ten times greater than Germany's 50 million hectares and over forty times greater than Kyrgyzstan's 9.5 million hectares. This high concentration of agricultural land in the U.S. is matched by significant investment flows: USD 20 billion per year, of which USD 15 billion is attributed to foreign investment. These figures underscore the openness, liquidity, and attractiveness of the American land market. Within Europe, Germany leads in investment volume with EUR 10

118 NAZARALIEVA, A.B., NIYAZOVA, A.N. 2023. Disputes on the termination of the right to land plots: A review of judicial practice. *Bulletin of the Karaganda University*, 112(4), 100-105. <https://doi.org/10.31489/2023l4/100-105>.

119 Food and Agriculture Organization of the United Nations. 2025. Publications. <https://www.fao.org/publications/en>.

120 JIANG, L., BAO, A., JIAPAER, G., LIU, R., YUAN, Y., YU, T. 2022. Monitoring land degradation and assessing its drivers to support sustainable development goal 15.3 in Central Asia. *Science of the Total Environment*, 807(2), 150868. <https://doi.org/10.1016/j.scitotenv.2021.150868>.

billion, which correlates with its well-developed legal environment, highly accurate cadastral system, and advanced planning structures as outlined in Table 1. The volume of land transactions and annual market turnover are also key indicators of economic activity. The USA, with 500,000 transactions and USD 70 billion in turnover, far outpaces other countries. For comparison, Germany registers 100,000 transactions and EUR 15 billion, while France reports 80,000 transactions and EUR 12 billion annually. Poland exhibits more moderate values, reflecting a smaller agricultural land base (16.5 million hectares) and regulatory restrictions on foreign land acquisition. The lowest figures are found in Kyrgyzstan: only 10,000 transactions and USD 800 million in turnover annually. These values reflect both the modest scale of the land market and the nascent stage of regulatory development. While modern features such as digitalisation and a unified cadastre system are being implemented, the overall framework remains in the formation stage (as seen in Table 1). By comparing the data from both tables, it becomes evident that the efficiency of land markets is closely tied to the quality of regulatory frameworks, the institutional structure of land governance, and the degree of digital integration. Countries with strong land management institutions – such as SAFER in France or federal land agencies in the United States – benefit from clear territorial planning, transparent rights registration, and legal certainty, all of which enhance the economic attractiveness of their land markets. In contrast, countries with less structured land management systems, such as Kyrgyzstan, show considerable development potential, but require continued improvement of their legal frameworks, institutional capacities, and administrative infrastructure in order to ensure more effective and sustainable land governance.

The results of the study demonstrate significant potential for improving land policy, particularly in developing countries. The adaptation of successful international practices – such as the registration system in Germany or leasing models in China – can enhance the efficiency of land use and increase the investment attractiveness of the land sector. Further research into these issues within the broader context of sustainable development, innovative technologies, and digitalisation is essential for shaping a modern model of land administration. At the same time, it is crucial to consider the national specificities of legal systems

and the level of institutional development when implementing international best practices.

The role of the state extends beyond market regulation; it must also ensure transparency, legal certainty, and the protection of the rights of both landowners and land users. By fostering a balanced legal and institutional environment, countries can support sustainable land governance that aligns with both economic needs and social priorities.

5. Conclusions

As a result of the comparative study of the legal regulation of land relations in Kyrgyzstan, Germany, France, Poland, and the United States, significant differences were identified in terms of regulatory frameworks, institutional support, approaches to the circulation of agricultural land, the degree of digitalisation, and the extent of environmental integration. The study confirmed that legal traditions (continental, Anglo-Saxon, or mixed systems) exert a strong influence on the nature of land governance, particularly regarding the structure of regulatory bodies, the design of territorial planning instruments, and the regulation of foreign investment. Quantitative data collected during the study revealed a clear connection between the level of economic development and the activity of the land market. The United States demonstrated the highest indicators, with an agricultural land area of 400 million hectares, an annual volume of 500,000 land transactions, and foreign capital inflows of USD 15 billion. In contrast, Kyrgyzstan recorded significantly lower figures – only 10,000 transactions per year, USD 800 million in total turnover, and USD 50 million in foreign investment – highlighting the urgent need to strengthen the legal and institutional foundations of the national land market.

A key practical outcome of the research is the identification of instruments that may be adapted for use in transition economies. These include electronic registration systems (as seen in Germany and Poland) and mechanisms for preventing land speculation (e.g., SAFER in France). It is recommended that countries seeking to modernise their land governance frameworks consider the implementation of integrated digital platforms, reinforcement of environmental safeguards, and the expansion of community involvement in spatial planning

processes. The study also faced certain limitations, primarily due to the inconsistency of statistical data across countries and variations in national methodologies for recording land transactions. Future research should focus on the dynamics of legal change in land legislation and the influence of international standards on national land governance systems. Beyond the comparative analysis, the study identified emerging global trends in the transformation of land relations. Notably, countries at all stages of development are increasingly prioritising digitalisation, transparency in land accounting, and sustainable land use. These shifts are reflected in the adoption of electronic cadastres, automated rights registration systems, and geo-information platforms. In parallel, there is growing emphasis on the integration of environmental considerations into land use decision-making, driven by global concerns such as climate change and soil degradation. These trends point to the necessity of harmonising legal and technical frameworks at the international level, through cooperation, exchange of best practices, and active participation in global initiatives on land management.