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## **Legal mechanisms for citizen participation in decision-making in the field of solid waste management**

The aim of this study is to analyze the legal mechanisms for citizen participation in decision-making in the field of municipal solid waste (MSW) management in Kazakhstan, identify legal barriers, and develop proposals for their elimination. The increasing volume of waste, low recycling rates, and environmental risks require a comprehensive legislative approach to strengthening public engagement. The research methodology includes a comparative legal analysis of international experience (EU, USA, Japan, South Korea), an examination of national legislation, and a content analysis of publications addressing the legal regulation of public participation in waste management. The study identifies key challenges that hinder citizen involvement, such as deficiencies in legislation, the formal nature of public hearings, limited access to environmental information, weak digital infrastructure, and the lack of citizen incentive mechanisms. The research findings have led to recommendations for improving legal regulation, increasing transparency in decision-making, introducing a system of incentives for citizens, and digitalizing interaction processes. Integrating effective legal mechanisms for public oversight into waste management is crucial for enhancing the effectiveness of Kazakhstan's environmental policy. Civic engagement supports the implementation of sustainable development principles, strengthens environmental responsibility, and improves the waste management system.

*Keywords:* legal regulation, municipal solid waste, public participation, legal mechanisms, legislative barriers, public oversight, environmental information, digitalization, international experience, environmental policy, law enforcement practice, sustainable development, government regulation, citizen incentives, public hearings, environmental responsibility.

### *Introduction*

The modern world is facing a growing crisis caused by a large-scale increase in the volume of municipal solid waste (MSW). In the context of urbanization, rapid consumption and the expansion of industrial production, waste has become not only an environmental but also a social problem requiring immediate solution. According to the Ministry of Ecology and Natural Resources of the Republic of Kazakhstan, approximately 4.1 million tons of municipal waste are generated annually in the country, of which only about 24 % is recycled, with the remainder being sent to landfills [1]. These figures underscore the severity of the problem, both for researchers and for the general public. Landfilling waste contributes to soil, water, and air pollution, negatively affecting ecosystems and public health.

International data further confirm the global scale of this issue. According to the United Nations Environment Program (UNEP), the volume of municipal solid waste worldwide reached 2.3 billion tons in 2023, with 38 % being managed in uncontrolled ways [2]. This crisis poses a significant threat to sustainable development, necessitating collective efforts from governments, civil society, and businesses to establish effective waste management mechanisms.

The involvement of civil society holds particular importance in addressing environmental challenges. In his address to the nation on September 1, 2024, President Kassym-Jomart Tokayev [3] emphasized the need to improve the environmental situation in Kazakhstan, highlighting that a commitment to cleanliness and order should become an integral part of the national character. The President stressed that one of the state's key priorities is to protect citizens from negative environmental factors, maintain ecological balance, and foster a culture of environmental stewardship.

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One notable initiative, as highlighted by the President, has been the nationwide environmental campaign “Taza Kazakhstan” (“Clean Kazakhstan”), which engaged approximately 3 million participants and resulted in the collection of over 1 million tons of waste, significantly improving the environmental situation. He called for this campaign to continue on a permanent basis, underscoring that caring for the environment should become a daily norm for every citizen.

A similar approach aligns with the principles of the Aarhus Convention [4], which emphasizes the right of citizens to participate in environmentally significant processes and access relevant information. Caring for nature and responsible attitude to environmental resources are considered not only as a necessity, but also as a strategic direction for the development of the state.

World practice convincingly demonstrates that public involvement in waste management plays a key role in improving the environmental situation and strengthening social cohesion. The examples of the countries of the European Union, Japan, South Korea and the USA confirm that separate waste collection and active participation of citizens can significantly reduce the volume of burial, contributing to the development of a sustainable environmental policy. The experience of developed countries shows that effective waste management is impossible without active interaction with society, which becomes an important partner in achieving environmental goals. However, in Kazakhstan, despite the adoption of the Environmental Code of 2021, significant gaps remain, making it difficult to implement these initiatives. Key problems include insufficient awareness of the population about the existing mechanisms of participation, imperfect legal regulation in the field of public control, as well as limited opportunities for the civil sector to interact with authorities.

To solve the problem, an integrated approach can be effective, combining legislative regulation, the practical implementation of innovative technologies for the management of solid waste and the formation of a culture of citizen participation in decision-making. Society faces not only the task of reducing waste volumes, but also the need to switch to sustainable production and consumption models.

The purpose of the study is to identify prospects for public involvement in waste management, including decision-making and control processes, by analyzing existing legislative mechanisms and developing recommendations for their improvement. Waste management has long been not only a task of the environmental agenda, but also a social necessity. In this context, legislation plays the role of a link between the state, society and business. But how effective is it in creating conditions for citizen participation? This is the central question of the present study.

To date, Kazakhstan’s regulatory framework has demonstrated significant achievements, including the adoption of a new environmental code, which lays the foundations for the transition to a circular economy. However, upon in-depth analysis, there is a feeling that legislation sometimes “closes in” within the framework of declarative norms, without providing real tools for involving the population in the waste management process. The problems are aggravated by the lack of consistency of individual legal acts and the weak integration of international standards into the national system.

The lack of clear mechanisms for public participation leads to the formalization of processes such as public hearings and environmental monitoring. Research shows that the lack of access to information and transparent procedures often generates public distrust of authorities. As the President stressed in his message to the people of Kazakhstan in 2022, it is difficult to achieve sustainable results without the active participation of citizens and their involvement in environmental projects. However, simply urging society to take responsibility will not resolve the issue: legislation should become a tool that stimulates the initiative “from the bottom up” and protects the rights of citizens to participate in decision-making.

The key to overcoming the existing gaps is to increase the openness of the legal system and its adaptation to the challenges of modern ecology. Successful international examples — from strict control over the implementation of environmental standards in EU countries to the development of civil society institutions in South Korea — show that effective legislative policy can not only strengthen environmental culture, but also become an incentive for social and economic transformations. It is important to emphasize that the involvement of citizens should be considered not as a duty, but as a right that allows them to actively influence the improvement of the environmental situation.

The scientific literature has not sufficiently studied the issue of a systematic analysis of interrelated barriers that prevent citizens from participating in the management of solid waste. It is necessary not only to eliminate individual problems, but also to develop a conceptual model of change that will ensure the sustainable participation of citizens in environmental policy.

The research has developed a concept based on five key principles. The first of them is to strengthen the legislative framework. This includes the consolidation of mandatory procedures for public participation and

the creation of public control mechanisms that will allow citizens to influence the adoption of environmentally significant decisions.

Transparency and accountability are the second principle aimed at increasing the availability of information. The openness of data on waste management plans and solutions will be an important step towards restoring trust between society and the state.

To solve the problem of low engagement, we emphasize the need to develop an environmental culture and raise public awareness. This involves the introduction of educational programs and information campaigns that will allow citizens to form an understanding of their role in solving environmental problems.

In addition, an important element of the concept is the creation of a system of incentives, such as grant programs and tax incentives, which will motivate citizens to participate in environmental initiatives. These measures have already proven their effectiveness in international practice and can be successfully adapted in Kazakhstan.

The final element of the concept is the digitalization of interaction processes. It is necessary to develop online platforms that will provide citizens with convenient access to participate in discussions, submit proposals and monitor the implementation of decisions.

The practical application of the proposed concept includes the development of a single digital platform, which will become a central tool for interaction between the state and society. Such a platform will ensure transparency and accessibility of information, simplify the process of citizen participation in decision-making and create conditions for an objective analysis of the effectiveness of waste management.

This study is based on an in-depth analysis of legal norms, an assessment of existing mechanisms of public participation and the development of recommendations aimed at improving them. It aims not only to point out the weaknesses of the legislation, but also to suggest a way to overcome them. This is seen as the main purpose of legal regulation — to serve as a basis for dialogue between the state and society, to support the initiative of citizens and to strengthen trust in the waste management system.

#### *Methods and materials*

The research is based on a comprehensive approach, including analysis of legislation, comparative analysis, document analysis and content analysis. As part of the analysis of legislation, the norms of the Environmental Code of 2021 and other normative legal acts regulating the sphere of MSW are being studied. The comparative analysis is conducted in order to study the experience of the countries of the European Union, the USA and Japan in the field of public engagement. The analysis of documents includes the study of scientific publications, reports of public organizations and government agencies, conference materials. Content analysis is used to study media publications on the environmental situation and waste management in Kazakhstan. Normative legal acts, scientific publications, reports of public organizations and government agencies, conference materials and publications in the media are used as research materials. A comprehensive analysis will allow to obtain objective results, identify prospects and formulate recommendations for improving legislation and practice of public involvement in waste management.

#### *Results*

In the course of the study, key problems were identified that impede effective public involvement in the management of MSW in Kazakhstan. These problems form a whole complex of interrelated barriers that require a systematic approach to their elimination.

One of the central problems is the lack of elaboration of mechanisms for citizen participation in legislation. The Environmental Code of 2021, although it enshrines the right of citizens to participate, does not contain clear procedures to ensure the implementation of this right. The lack of detailed regulation leads to the formalization of events such as public hearings, which are held without proper transparency and consideration of citizens' opinions. For the public, this creates the impression of the effectiveness of the process, which undermines confidence in government authorities and environmental policy in general.

Another significant obstacle is the limited accessibility of environmental information. Existing legal norms do not provide clear requirements for the format, completeness, or timeliness of data dissemination regarding MSW management. Citizens often lack sufficient information about planned projects and opportunities to participate in their discussion, which hampers their active involvement. Restricted access to information is considered one of the most demotivating factors for civic engagement.

Equally important is the low level of environmental awareness and understanding of citizens' rights among the population. Many citizens fail to recognize the importance of their participation in waste man-

agement processes, which stems from both the absence of educational programs and limited access to information. Data analysis indicates that this creates a “vicious cycle”, where low engagement breeds distrust, and distrust further diminishes citizens’ motivation to participate.

Infrastructure limitations exacerbate the situation. Inadequate funding for programs aimed at public involvement and the lack of advanced online platforms to facilitate interaction between citizens and government agencies represent significant barriers. In the context of digitalization, the absence of such technologies appears particularly paradoxical and calls for urgent solutions.

The identified barriers are not isolated but are closely interconnected. This interdependent nature of the problems requires a comprehensive approach that considers both legislative and practical aspects.

The research results demonstrate that addressing the issue of public involvement in municipal solid waste management necessitates a systematic approach. The identified barriers and proposed strategies for overcoming them pave the way for the development of a new model of environmental policy, wherein every citizen can perceive their significance and influence in addressing nationwide challenges.

### *Discussion*

The analysis of the existing legislation of the Republic of Kazakhstan in the field of MSW reveals significant state efforts to establish a legal framework aimed at addressing one of the most pressing environmental challenges. Kazakhstan’s environmental legislation has undergone substantial evolution with the adoption of the new Environmental Code [5] on January 2, 2021. This document serves as the primary legal instrument regulating waste management issues, including waste collection, recycling, and disposal, as well as environmental protection. It has replaced outdated provisions of earlier regulatory acts, such as the Law “On Environmental Protection” of 1997, which was repealed in 2007, and has clarified the norms of subordinate acts, many of which were subsequently revised or updated, including the order of the Minister of Ecology, Geology, and Natural Resources of the Republic of Kazakhstan No. 575, dated August 16, 2022.

The 2021 Environmental Code reflects a commitment to transitioning to the principles of a circular economy and introduces mechanisms for separate waste collection, recycling, and disposal. Special attention is given to the rights of citizens to participate in environmentally significant processes. The Code mandates public hearings and environmental assessments as compulsory measures; however, their practical implementation remains insufficiently effective. Infrastructure deficiencies, low public awareness, and limited transparency in governmental activities continue to hinder the effective realization of these provisions. The development of new subordinate acts in compliance with the 2021 Environmental Code and the improvement of enforcement practices remain critical for enhancing the efficiency of solid waste management.

While citizens’ rights to participate in waste management are formally enshrined in regulatory acts, the mechanisms for their implementation are insufficiently developed. For instance, public hearings, intended to ensure citizen involvement in decision-making regarding the construction of landfills or the introduction of new waste management technologies, are often conducted without adequately considering public opinion. Similarly, environmental assessments, which could serve as tools for public oversight, are limited in their accessibility, undermining public trust in the decisions being made.

Key shortcomings of the current legislation include the lack of clear procedures for citizen engagement. As noted in the research, low public motivation to comply with waste management rules is partially attributable to the lack of effective state-provided incentives. Additionally, insufficient public awareness about waste sorting and disposal regulations, indicative of a lack of transparency in governmental operations and the absence of effective mechanisms for informing the population, exacerbates the problem. Moreover, the lack of clear procedures for public involvement and weak regulations holding the government accountable for failing to comply with public participation norms make public hearings largely a formality.

To address these issues, experts recommend legislative development, including the establishment of clear procedures for involving citizens in decision-making processes and formalizing governmental accountability. Simultaneously, it is essential to enhance transparency by ensuring access to information about plans and decisions in the waste management sector, as well as to introduce incentive systems that motivate citizens to actively participate in these processes [6; 22].

The issues of transparency and accountability in the sphere of MSW in Kazakhstan remain insufficiently regulated. According to a study conducted by the Center for Legal Policy Research [7; 27], despite the existing obligations of state and local authorities to inform the public about plans in the field of MSW, there are no detailed requirements regarding the format and completeness of the provided information. This defi-

ciency leads to insufficient public preparedness for engaging in discussions on environmental issues, ultimately reducing the quality of decision-making processes.

Addressing the challenges of waste management in Kazakhstan requires the strengthening of environmental legislation that would encourage resource users to reduce emissions of pollutants into the environment. Scientific studies [8; 151] emphasize that modern Kazakhstani legislation is oriented towards the adoption of European Union environmental standards, which includes the creation of an electronic waste management system and consistent improvements in waste disposal and recycling systems. Of particular importance in this policy is the principle of producer responsibility, fixed in 2021, which is aimed at involving manufacturers in waste minimization processes and stimulating the use of secondary resources.

Nevertheless, an analysis of the state of the waste management system in Kazakhstan reveals significant problems, including a large number of spontaneous landfills, the lack of waste disposal facilities that meet environmental safety requirements, and a low level of recovery of secondary resources. The violation of recycling technologies and the shortcomings of the regulatory framework are complemented by the lack of an integrated waste management system, including selective collection, sorting, processing and the creation of a secondary raw materials market. In addition, the low level of environmental culture and awareness of the population, limited technological capabilities and the lack of a unified waste monitoring system remain significant obstacles to the development of this area.

A review of international practices demonstrates that the successful involvement of the public in the management of MSW depends on a well-developed legal framework, available interaction tools and the availability of sustainable feedback mechanisms between authorities and citizens. The countries of the European Union, the USA and Japan have accumulated significant experience in this area, which can serve as a guideline for improving the waste management system in Kazakhstan.

In the European Union, waste management is based on the principles of a circular economy, which is reflected in the relevant EU directives. Public engagement plays a key role in these processes. Germany, demonstrating one of the highest rates of waste recycling in the world, actively uses electronic platforms to inform citizens about the separate collection and recycling of waste. These platforms provide data on the structure of waste, the location of processing plants and measures to reduce the environmental footprint. The system of electronic polls and voting allows to take into account the opinion of residents when developing new environmental initiatives, helping to strengthen confidence in the government [9].

In the USA, public participation mechanisms are based on the principle of open governance. At the federal level, digital platforms such as Regulations.gov enable citizens to submit comments and proposals on draft legislation and regulatory initiatives. Additionally, public forums and consultations organized by local authorities are widely used. For instance, in California, local environmental councils hold regular meetings with citizens to discuss waste management issues, ensuring that decisions are made with consideration of public opinion.

Japan stands out for its approach to engaging citizens through educational programs and the promotion of a culture of waste segregation. The country actively conducts awareness campaigns via schools, local communities, and the media. Japanese legislation guarantees mandatory public notification of waste management measures and provides opportunities for participation in environmental councils established at the municipal level [10].

Feedback mechanisms between the public and authorities in these countries range from simple electronic submissions to complex integrated monitoring systems. Feedback is a key component of effective governance, particularly during periods of reform and transformation. It allows for the consideration of diverse societal interests, the adjustment of regulatory methods, and balanced decision-making, thereby fostering public trust in governmental institutions.

Among the key trends in the development of feedback mechanisms are decentralization and the deconcentration of power. In Italy, for example, these trends are implemented through consultative meetings between central and regional authorities. The boundaries within the state apparatus are becoming increasingly blurred, as private entities and civic groups, such as chambers of commerce and universities, are included in governance processes, making administration more inclusive. Public and business participation also plays an increasingly significant role. In the United States and Japan, mechanisms exist that allow citizens and entrepreneurs to submit proposals on critical economic decisions. The development of lobbying institutions in the United States, Canada, and European countries, including Austria and Germany, is regulated by specific laws that ensure transparency in interactions between the private sector and the government. Monitoring systems conducted by both governmental and independent organizations facilitate objective evaluations of gov-

ernance effectiveness. External monitoring, like other feedback mechanisms, enhances transparency, strengthens societal trust, and contributes to the more efficient implementation of public policies [11; 2].

Legislative guarantees for citizen participation in environmental initiatives are a cornerstone of effective waste management governance. The Aarhus Convention, signed by most European countries, explicitly enshrines the right of citizens to participate in decision-making, access environmental information, and seek justice in environmental matters. These principles have been successfully integrated into the national legislation of EU countries, making public participation not merely a recommended practice but a mandatory component of environmental policy.

The applicability of these practices in Kazakhstan appears to be significant; however, their adaptation requires consideration of national specificities. First, it is essential to develop digital infrastructure that enables citizens to participate in environmental initiatives remotely. Second, ensuring the availability of information regarding waste management and related measures through electronic platforms and public registries is critical. Third, legislative changes are necessary to guarantee citizen participation in decision-making processes and to establish effective feedback mechanisms.

The integration of these practices, tailored to Kazakhstan's realities, has the potential to foster a more sustainable and transparent waste management system. Experiences from other countries demonstrate that active public participation not only enhances environmental conditions but also promotes a culture of environmental responsibility across society.

Public involvement in MSW is a cornerstone of sustainable environmental governance. Despite the legal provisions granting citizens the right to participate, public engagement in practice often encounters numerous obstacles. These challenges constitute a complex network of issues, each closely interlinked, amplifying their cumulative impact.

At the primary level, administrative barriers impede citizens' access to decision-making processes. The key difficulty lies in the inefficiency of procedures and the lack of accessible information. Public hearings, which could serve as a vital tool for public engagement, are frequently conducted in a perfunctory manner, lacking transparency. Notifications about such events are often limited, and their organization fails to consider the convenience of citizens — timing and locations may not be conducive for broader audiences. This lack of transparency deprives the public of the opportunity to adequately prepare and participate in discussions. This raises the question: if the state formally invites citizens to engage but fails to provide the necessary conditions, how meaningful is the right to participation?

These administrative challenges are closely tied to legal barriers. Although the 2021 Environmental Code affirms citizens' right to participate, it lacks clear procedural guidelines for public involvement. For instance, the legislation does not specify how citizen proposals made during public discussions should be addressed by authorities, nor does it provide mechanisms for appealing their disregard. This legal "silence" fosters a perception of procedural formality and erodes public trust in the potential for meaningful influence on environmental policy.

In this context, social barriers further exacerbate the alienation of citizens from decision-making processes. Low levels of environmental awareness and limited public knowledge of their rights amplify societal passivity. People either do not know how they can contribute to change or do not believe their voices will be heard. As a result, a vicious cycle emerges: the lack of public involvement leads to an absence of successful examples of collaboration between the state and society, which in turn deepens public mistrust.

These challenges are compounded by the lack of technical infrastructure that could facilitate interaction between the state and citizens. In the era of digitalization, many countries actively implement online platforms for submitting proposals and participating in environmental discussions. In Kazakhstan, such technologies are still in their infancy. Offline formats, such as public hearings, remain predominant, but their organization is often challenging and not always accessible to a wide audience. The absence of modern digital tools not only limits citizen participation but also reduces the effectiveness of government-public interaction.

These conclusions are supported by the outcomes of the conference held in Astana, where issues of public participation in decision-making processes on environmental matters were discussed. The conference materials addressed challenges related to citizens' access to environmental information and the obstacles they face when engaging in decision-making processes. Particular attention was paid to the implementation of the Aarhus Convention in Kazakhstan. The discussions highlighted the country's environmental "hotspots", the impact of pollution on food quality, the medical consequences of exposure to pollutants, the relevance of maintaining a pollutant registry, and the role of small grant programs in addressing local environmental problems [12].

Additionally, Aigul Solovyova, Chairperson of the Board of the Association of Environmental Organizations of Kazakhstan, proposed strengthening mechanisms for public oversight by establishing a unified environmental digital platform. According to her, an accessible database would ensure transparency, allow for monitoring and analysis, and reflect the recognition of the need to digitize public engagement processes in environmental issues [13].

Funding is a critical prerequisite for overcoming the aforementioned barriers. Organizing quality events, information campaigns, and establishing technical infrastructure require significant resources. Currently, budget allocations for such programs in Kazakhstan are limited, which hinders the implementation of promising initiatives for public involvement. Despite calls from the President of Kazakhstan to support domestic scientists and promote the development of science, grant funding remains insufficient to fully develop programs for citizen participation in environmental matters [14].

These interrelated barriers create a complex web of challenges that obstruct the development of an effective system for public involvement in decision-making. Each existing barrier undermines public trust in waste management processes. A comprehensive approach is required to ensure meaningful public engagement in waste management. This approach must address legal gaps, incorporate modern technologies, enhance environmental literacy, and increase funding for relevant programs. Efforts to overcome these barriers should not be limited to resolving isolated issues but should also aim to establish a system in which every citizen feels valued and accountable for addressing environmental challenges.

Kazakhstan's current environmental legislation reflects notable progress in integrating sustainable development principles. However, the existing legal framework requires further refinement to enable the public not only to participate formally in decision-making processes but also to exert tangible influence over MSW management. Addressing this issue necessitates not just closing specific legal gaps but also rethinking the underlying concept of state-citizen interaction to develop a more transparent and accessible system.

One of the primary objectives of such reform is the introduction of mandatory public participation procedures. At present, mechanisms for citizen engagement, such as public hearings, are insufficiently regulated. The explicit legislative establishment of obligatory procedures, including requirements for their organization, public notification, and incorporation of citizen feedback, could significantly enhance public perceptions of their role in environmental policymaking. Legislative examples from the European Union demonstrate that well-defined participation frameworks foster trust in decision-making processes. In Kazakhstan, however, the absence of such norms creates an impression of procedural formalism, undermining their effectiveness.

This issue is closely linked to the need for the development of public oversight institutions that could ensure adherence to the principles of transparency and accountability. Currently, these institutions operate on a voluntary basis without robust legal support, limiting their potential impact. Codifying the rights of public organizations and grassroots groups to conduct independent monitoring of environmental compliance, along with imposing obligations on public authorities to review the outcomes of such monitoring, could enhance the significance of public oversight. It is crucial not only to grant citizens the right to oversight but also to mandate government bodies to incorporate the results into their activities.

However, even with strong public oversight institutions, the system's effectiveness will depend on the accountability of public authorities in considering public opinion. This remains one of the most vulnerable aspects of Kazakhstan's legal framework. The adoption of regulatory acts obliging public authorities not only to receive proposals from citizens but also to provide reasoned responses regarding their acceptance or rejection would be a step toward creating a genuinely dialogic model of interaction. Such transparency is essential for strengthening citizens' trust in government structures, without which meaningful public participation is unlikely.

To further motivate citizens, obligations must be complemented by incentives for active participation. One effective mechanism could be grant programs supporting environmental initiatives such as organizing separate waste collection or participating in environmental monitoring. Tax incentives for individuals and companies actively involved in such initiatives could also serve as significant motivators. International practices, such as those in South Korea, demonstrate that financial incentives for environmental activity encourage not only citizen engagement but also the development of environmentally responsible businesses.

As the final link in this chain of changes, the potential of modern technologies should be considered. Digitalizing participation processes, including the creation of online platforms for submitting proposals, conducting public hearings, and accessing environmental information, would significantly simplify interactions between citizens and the government. The implementation of such technologies, accessible to broad seg-

ments of the population, could minimize barriers related to time constraints or procedural complexity, thereby improving the responsiveness of feedback mechanisms.

All these changes are interconnected: clear regulation of participation procedures will be effective only with the presence of oversight mechanisms, and their implementation is impossible without governmental accountability. Incentives and digitalization, in turn, can act as catalysts to ensure citizen engagement and strengthen trust in the system. The proposed measures will not only address current gaps but also establish conditions for the sustainable development of environmental policy, where every citizen feels their significance and responsibility.

Effective waste management largely depends on the active involvement of citizens in decision-making and the implementation of environmental initiatives. International experience demonstrates that public engagement not only enhances the quality of environmental policy but also strengthens societal trust in government institutions. It is worth noting that the success of such practices is rooted in a comprehensive approach that combines legislative support, educational programs, and the stimulation of public activity.

### *Conclusions*

The conducted study has identified and systematized key challenges hindering effective public engagement in MSW management in Kazakhstan. The analysis revealed that the primary barriers include deficiencies in the legislative framework, insufficient regulation of citizen participation procedures, the formal nature of public hearings, limited access to environmental information, a low level of environmental awareness among the population, and a lack of funding and modern technical infrastructure.

Within the framework of the research, a conceptual model of a comprehensive approach to addressing these issues was developed. This model encompasses the improvement of legislation, enhancement of transparency and accountability of government authorities, promotion of environmental awareness, implementation of incentive systems for citizens, and the integration of modern technologies. These measures aim to eliminate barriers, improve the effectiveness of environmental policies, and establish a more sustainable waste management system.

The scientific value of the study lies in its comprehensive analysis of interrelated barriers to public engagement, as well as in the development of well-founded recommendations for overcoming these obstacles. The practical significance is reflected in the potential application of the proposed solutions to refine the regulatory framework and to design and implement environmental initiatives aimed at fostering active public participation in MSW management.

The results obtained can be utilized by government authorities to develop and implement more transparent and effective environmental policies and by public organizations to enhance the quality of their activities in the field of environmental protection. Furthermore, these findings may serve as a foundation for further academic research aimed at developing new approaches to engaging citizens in decision-making and oversight processes in waste management.

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## Қатты қалдықтарды басқару саласында азаматтардың шешім қабылдау процестеріне қатысуының құқықтық тетіктері

Зерттеудің мақсаты Қазақстанда тұрмыстық қатты қалдықтарды (ТҚК) басқару саласында азаматтардың шешім қабылдау процестеріне қатысуының құқықтық тетіктерін талдау, заңнамалық кедергілерді анықтау және оларды жою бойынша ұсыныстар әзірлеу. Қалдықтардың көлемінің артуы, оларды қайта өңдеу деңгейінің төмендігі және экологиялық қауіптердің күшеюі азаматтардың белсенді қатысуын қамтамасыз ететін кешенді құқықтық тәсілді қажет етеді. Зерттеу әдістеріне халықаралық тәжірибені (ЕО, АҚШ, Жапония, Оңтүстік Корея) салыстырмалы-құқықтық талдау, Қазақстан Республикасының экологиялық заңнамасын зерттеу және қалдықтарды басқару саласындағы қоғамдық қатысу мәселелеріне арналған ғылыми жарияланымдарды контент-талдау кіреді. Зерттеу нәтижесінде азаматтардың қалдықтарды басқару жүйесіне қатысуына кедергі келтіретін негізгі проблемалар анықталды. Олардың қатарында заңнаманың жетілмегендігі, қоғамдық тыңдаулардың формалды сипаты, экологиялық ақпаратқа қолжетімділіктің шектеулігі, цифрлық инфрақұрылымның әлсіздігі және азаматтарды ынталандыру механизмдерінің жеткіліксіздігі бар. Зерттеу нәтижелері құқықтық реттеуді жетілдіру, шешім қабылдаудың ашықтығын арттыру, азаматтарды ынталандыру жүйесін енгізу және өзара әрекеттесу процестерін цифрландыру бойынша нақты ұсыныстар әзірлеуге мүмкіндік берді. Қоғамдық бақылаудың тиімді құқықтық тетіктерін қалдықтарды басқару жүйесіне интеграциялау Қазақстанның экологиялық саясатының тиімділігін арттырудың маңызды шарты. Азаматтардың белсенді қатысуы тұрақты даму қағидаттарын жүзеге асыруға, экологиялық жауапкершілікті арттыруға және қалдықтарды басқару жүйесін жақсартуға ықпал етеді.

*Кілт сөздер:* құқықтық реттеу, тұрмыстық қатты қалдықтар, қоғамдық қатысу, құқықтық тетіктер, заңнамалық кедергілер, қоғамдық бақылау, экологиялық ақпарат, цифрландыру, халықаралық тәжірибе, экологиялық саясат, құқық қолдану практикасы, тұрақты даму, мемлекеттік реттеу, азаматтарды ынталандыру, қоғамдық тыңдаулар, экологиялық жауапкершілік.

## Правовые механизмы вовлечения граждан в процессы принятия решений в сфере управления твердыми отходами

Целью исследования является анализ правовых механизмов вовлечения граждан в процессы принятия решений в сфере управления твердыми бытовыми отходами (ТБО) в Казахстане, выявление правовых барьеров и разработка предложений по их устранению. Рост объемов отходов, низкий уровень переработки и связанные с этим экологические риски требуют комплексного законодательного подхода для активизации общественного участия. Методология исследования включает сравнительно-правовой анализ международного опыта (ЕС, США, Японии, Южной Кореи), изучение национального законодательства, а также контент-анализ публикаций, посвященных правовому регулированию общественного участия в управлении отходами. В ходе исследования выявлены ключевые препятствия, затрудняющие вовлечение граждан: несовершенство законодательства, формальный характер общественных слушаний, ограниченный доступ к экологической информации, слабая цифровая инфраструктура и недостаток механизмов стимулирования граждан. Результаты исследования позволили разработать рекомендации по совершенствованию правового регулирования, повышению прозрачности принятия решений, внедрению системы стимулов для граждан и цифровизации процессов взаимодействия. Внедрение эффективных правовых механизмов общественного контроля в управление отходами является важным условием повышения эффективности экологической политики Казахстана. Гражданская активность способствует реализации принципов устойчивого развития, укреплению экологической ответственности и совершенствованию системы управления отходами.

*Ключевые слова:* правовое регулирование, твердые бытовые отходы, участие общественности, правовые механизмы, законодательные барьеры, общественный контроль, экологическая информация, цифровизация, международный опыт, экологическая политика, правоприменительная практика, устойчивое развитие, государственное регулирование, стимулирование граждан, общественные слушания, экологическая ответственность.

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