



**INFRASTRUCTURAL MODERNIZATION OF THE AGRO-INDUSTRIAL COMPLEX AS THE MOST IMPORTANT VECTOR OF ACCELERATED DEVELOPMENT OF RURAL AREAS**

**АӨК-НІ ИНФРАҚҰРЫЛЫМДЫҚ ЖАҢҒЫРТУ АУЫЛДЫҚ ЖЕРЛЕРДІҢ ЖЕДЕЛ ДАМУЫНЫҢ МАҢЫЗДЫ ВЕКТОРЫ РЕТІНДЕ**

**ИНФРАСТРУКТУРНАЯ МОДЕРНИЗАЦИЯ АПК КАК ВАЖНЕЙШИЙ ВЕКТОР УСКОРЕННОГО РАЗВИТИЯ СЕЛЬСКОЙ МЕСТНОСТИ**

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**Abstract.** The article is devoted to the issues of socio-economic development of rural areas - one of the key performance indicators of the agro-industrial complex of Kazakhstan. The *aim* is to study the economic potential of rural areas, to determine the prospective directions of production and social transformation of Ushterek village of Yevgenyevsky rural district of Pavlodar region. *Methods* - target, hypothesis setting, strategic planning and forecasting were used to identify problem situations, setting goals and solving problems. Justification and argumentation of reasoning in the work are obtained on the basis of analytical information, including comparison, evaluation, generalization and systematization of statistical data. *Results* - the authors analyzed the degree of provision with social infrastructure of this region. The influence of various factors on the expansion of this sphere is investigated. The range of problems that hinder the effective activity of this sector is outlined. It is noted that the realization of the economic potential of rural areas will allow solving a number of issues of modernization of infrastructure facilities. *Conclusions* - the regional system of social resources should take into account the main interests of the state, aimed at improving the quality of life and welfare of the population. These are, first of all, solving the housing problem and meeting the growing needs of residents in quality housing, improving environmental conditions,







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**Introduction**

The agricultural sector holds a vital position within the state's economy. The level of agricultural development is often a key determinant of a country's economic security. Agriculture and rural settlements are intrinsically linked, with rural communities historically emerging around agricultural activities and declining when these activities ceased.

Recent history underscores this relationship: the crisis in agricultural production has resulted in population outflows and the deterioration of essential services in rural areas.

Currently, the global economic crisis has exacerbated the challenges facing agriculture in Kazakhstan. Therefore, it is imperative to prioritize the development of the agricultural sector, focusing on key issues such as human resource provision, efficient utilization, and pricing policies.

Ensures food security of both a particular region and the country as a whole. Taking into account that rural areas make a significant contribution, the strategic task of state policy is to introduce in rural areas new quality technologies and techniques in production, working conditions, recreation, everyday life, education, health care, culture

To enhance labor productivity in agriculture and harness the export potential of the agricultural sector, the Government of the Republic of Kazakhstan aims to implement modern technologies. This will be achieved by attracting foreign investments and offering various incentives to investors. These incentives include guarantees on investment returns, tax exemptions on certain types, and opportunities for co-financing.

Rural areas have their own distinctive features and characteristics in contrast to urban areas.

A key distinguishing factor is the low population density found in rural regions. This issue results in a reduced standard of living and education, a shortage of social services, and inefficient spending of local budgets. Kazakhstan, characterized by its low population density and extensive land area, and having experienced significant population loss due to large-scale emigration in the 1990s, faces a pressing need to boost its population numbers.

Further it is possible to distinguish such differences as the distribution of population in small settlements, dependence on weather conditions of activity and others. Thus, we have revealed that the state of rural areas, their socio-economic development is one of the key indicators of the effectiveness of the agro-industrial complex of the Republic of Kazakhstan.

This is all the reason for researching this question.

**Literature Review**

In alignment with the «Kazakhstan 2050» Strategy, the key priorities for the agro-industrial complex include bolstering the nation's food security, developing a strong agricultural business sector, enhancing the competitiveness of local products, increasing sales in both domestic and international markets, reducing dependency on food imports, and establishing a robust system of state support for agricultural production. To mitigate the impacts of adverse weather conditions, Kazakhstan is also implementing various forms of insurance for agricultural producers (Strategy "Kazakhstan-2050": a new political course of an established state) [1].

As directed by the Head of State, the Concept for Rural Development of the Republic of Kazakhstan for 2023-2027 has been devised. This initiative focuses on strengthening institutional support, improving rural development strategies, and enhancing the quality of life in rural areas, thus fostering a more comfortable living environment (The Concept for the Development of Rural...) [2].

In compliance with the directives of the Head of State, a comprehensive Concept for the Development of Rural Territories in the Republic of Kazakhstan for 2023-2027 has been crafted. This concept aims to refine and enhance institutional support for rural development, elevate living standards, and create a conducive and comfortable living environment in rural communities.

There are significant differences between urban and rural areas in terms of resource endowment, historical background, and policy environment.

Innovations and good technical equipment of peasant farms influence farmers' income and consequently labour productivity and social infrastructure of the village (Werenfridus T., Boanerges P.S.; Trees, A.P., Nurmalina R.) [3,4].

In contemporary economic conditions, many countries have seen the rise of rural tourism as a popular aspect of socio-economic development. This sector serves as a stabilizing force, helping to maintain a standard quality of life for rural residents, while also fostering the growth of the regional economy, service infrastructure, consumer services, and social sectors (Roman M., Kudinova I.) [5].

Additionally, the advancement of the digital economy in remote areas remains a pertinent issue. The development of digital infrastructure in these regions can significantly propel the overall development of rural areas, providing a substantial boost to their economic



and social progress (Zhaoxin H., Huifang L.) [6]. In the social dimension, the digital economy reduces the barriers of information asymmetry. Government departments could use digital governance to accurately capture the personalized needs of urban and rural residents, leveraging platform effects and long-tail advantages of digital technology to provide accurate services for employment, social security and other public service products (Guo S., Guo H.) [7].

According to the authors, rural development in these areas will give a big boost to development and increase the attractiveness of living and working in rural areas. With the changes taking place in the global environment, agriculture is becoming an increasingly high-tech sector and the introduction of digital technologies for the social and economic development of rural areas is very important.

#### Materials and methods

The foundation of this study is comprised of scientific literature and relevant regulatory documents concerning the topic at hand. The rationale and substantiation for the discussion in the paper are derived from statistical and analytical methods, including comparison, evaluation, generalization, and systematization of statistical data. The paper also outlines popular methodologies employed in the economic research of rural development, such as SWOT analysis, case studies, monitoring and evaluation, comparative analysis, interviews, focus groups, and other tools.

Socio-economic imbalances in the level and quality of life in rural areas remain a significant issue. Currently, 42% of the nation's population resides in rural regions. Given the specific characteristics of the agri-food sector's development and the increase in agricultural income, a key factor limiting improvements in living standards is the high proportion of the rural population. This demographic situation complicates the planning and execution of sustainable development strategies for the country.

The social, economic and environmental aspects of the study are closely related and only together provide a comprehensive view of the rural population, its condition, problems and development prospects. Thus, the following indicators should be used as criteria for assessing the state of living standards in rural areas: medical, demographic, social, economic and environmental. The Pavlodar region consists of 10 administrative districts, the regional center is the city of Pavlodar. There are also 3 cities, 7 towns, 165 aul (rural) districts and 408 villages.

#### Results

By the end of 2023, the village had a total population of 1 865, with 502 individuals (27%) being children aged 0 to 16 years. The

economically active segment of the population numbered 1 075 people. There were 203 retirees, 66 mothers with multiple children, and 3 people registered as unemployed at the employment office. The village had 6 private farms and 85 private entrepreneurs.

For many years, agriculture has been the principal sector offering employment and income to the rural community. The land resources of the rural district total 17 549 hectares, of which 13 129 hectares are used for agricultural purposes. Within this, 5 705 hectares (43.5% of agricultural land) are designated for arable farming, and 4 196 hectares (32%) are utilized as pastures (Agriculture, forestry and fisheries in the Republic of Kazakhstan...) [8].

The area is particularly focused on plant cultivation, especially vegetable growing, with LLP «Ushterek and K» being one of the major enterprises in this field. In 2023 LLP «Ushterek and K» sowed barley and spring wheat. Total barley production amounted to 62.3 tons, wheat – 36.6 tons. The average yield of barley is 9.51 tons/ha, wheat – 14.54 tons/ha.

Livestock breeding has been developing in the village in recent years. By December 2023 the number of cattle amounted to 956 heads, horses – 649 heads (growth – 1.2%), sheep and goats – 2 978 heads (growth – 16.7%), all kinds of birds – 269 heads (decrease - 153 heads +9.5 %).

There are certain conditions for the development of livestock breeding: fodder base, availability of veterinarian, stable epizootic situation.

The school was built in 1 970, 385 pupils, 11-year education in two shifts. The staff of teachers is 82 persons. Out of 385 students, 3 are in specialized education: 2 with physical developmental disabilities, 1 with mental retardation, 2 in foster care.

State initiatives such as the «Diploma to Village», «Employment Road Map», and «Affordable Housing» programs are being actively carried out in rural areas. Under the youth practice program, twenty five young professionals are employed.

These new recruits to the village benefit from favorable living conditions, including access to quality housing. There are 4 oncologic patients on the medical register, with congenital heart defect-1, with the diagnosis of hemangioma – 2. The birth rate is high. 58 children are born per year (Agriculture, forestry and fisheries in the Republic of Kazakhstan...) [8].

Factors hindering the effective development of the agricultural sector:

- lack of suitable land for growing fodder crops;
- low implementation of innovations;

- weak material and technical base;
- underdeveloped infrastructure;
- difficulties in obtaining financing due to insufficient collateral;
- lack of qualified specialists;
- low yield of the main crops of crop production;
- low labor productivity;
- problems in the agricultural insurance system;
- depletion of natural resources, environmental problems;
- low yield of main crops of crop production.

The need to address these problems is due to the fact that agriculture is one of the most promising areas of economic growth and food security. It also serves as a mechanism

for expanding opportunities for developing countries.

The opportunities that can be achieved by overcoming the above mentioned barriers are as follows:

- \* constant growth of the gross product of the agro-industrial complex;
- \* occupying a large market share among producers of organic products, among the markets of Russia, South Asia and Europe;
- \* full import substitution and high exports in a number of sectors of the agro-industrial complex;
- \* use of innovative technologies in this area.

The SWOT analysis of the socio-economic development of the village is presented below in table 1.

Table 1 - SWOT-analysis of the socio-economic development of the village

Strengths	Weaknesses
<ul style="list-style-type: none"> <li>- constant renewal of agricultural machinery;</li> <li>- utilization of modern technologies;</li> <li>- creation of elite breeds;</li> <li>- locating large farms in the village;</li> <li>- provision of agriculture with good milk, no water problems;</li> <li>- good supply of fertilizers, herbicides and pesticides;</li> <li>- availability of successful business examples.</li> </ul>	<ul style="list-style-type: none"> <li>- lack of agricultural land (for foddes crops);</li> <li>- access to financial recourses is limited due to luck of the village;</li> <li>- the population in the village is small dwindling every year;</li> <li>- underdeveloped infrastructure;</li> <li>- lack of investment in rural infrastructure;</li> <li>- main lands are owned by one or several large owned;</li> <li>- lack of specialized pastures for cattle walking and livestock breeding development;</li> <li>- lack of production facilities with sufficient production capacity process livestock product;</li> <li>- low soil fertility.</li> </ul>
Opportunities	Threats
<ul style="list-style-type: none"> <li>- financial support of the agro-industrial complex;</li> <li>- high demand for organic products;</li> <li>- because of the trend towards organic products, it is profitable to invest in livestock and crop production;</li> <li>- low unemployment;</li> <li>- development towards import substitution and exports.</li> </ul>	<ul style="list-style-type: none"> <li>- reduction of rural development programs (grant programs), reduction of subsidies;</li> <li>- outbreaks of viruses and infections affecting livestock and poultry, pest infestations;</li> <li>- uncontrolled weather conditions that may lead to loss of profits.</li> </ul>
<p>Note: compiled by the authors on the basis of sources (Agriculture, forestry and fisheries in the Republic of Kazakhstan...; Kivarina M.V., Jurina N.N.; Akimbekova G.U., Nikitina G.A.) [8,9,10]</p>	

The development of agriculture should be aimed at the formation of financially sustainable enterprises in this sector, by building capacity to increase the level of competitiveness and efficiency of production. Namely, the strategic development of financially sustainable farmers depends on the assistance of the state to open access to key markets.

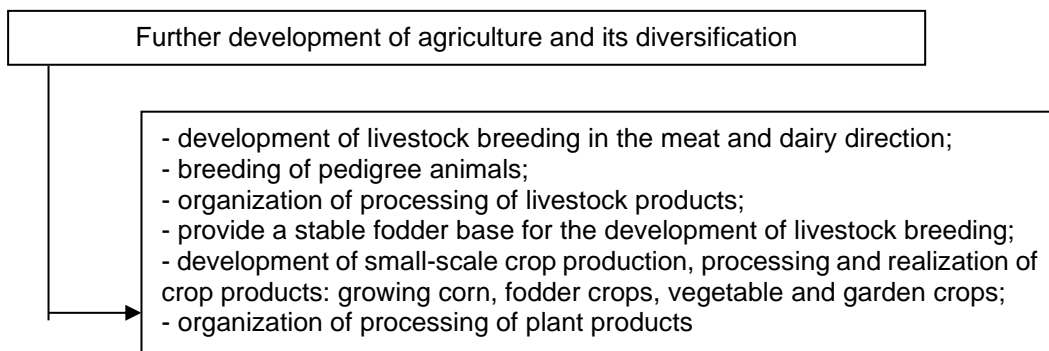
Import substitution of agricultural products will ensure food security. The development of meat production, increase in livestock production can be provided by the creation of a meat cluster, by involving new farmers in this industry.

The potential for growth in demand for agricultural products is very large, with the help of

local and regional authorities, competent management of vast natural resources, the development of agro-industrial complex will reach a new level. The positioning of products as ecological, meeting all standards, with eco-labeling can be an additional advantage.

The following strategic objectives, priority areas, indicators of achievement of priority areas affecting the further development of Ushterek village have been identified.

1. Sustainable socio-economic development of Ushterek village, based on the formation of financially sustainable agricultural enterprises (figure 1).



Note: compiled by the authors on the basis of sources (Divletsen, K., Sandoe J.; Lylov, A.S., Kondratenko I.S.; Murav'eva M.V.) [11,12,13]

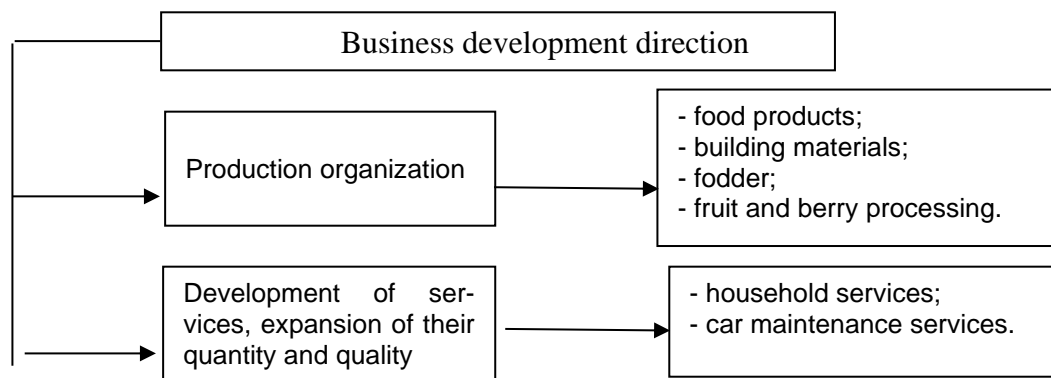
Figure 1 – Further development of agriculture and its diversification

Indicators for achieving priority objectives include:

- expansion of planting areas with high-quality seeds;
- increased application of mineral fertilizers;
- higher production of meat at slaughter weight;
- growth in the volume of rice processing;
- increased proportion of pedigree cattle within the total livestock;
- number of farmers benefiting from services provided by the service and training center;

- rise in milk and dairy product production;
- achieving full (100%) utilization of vegetable storage facilities for their intended purpose;
- improvement in the epizootic conditions within the rural district;
- achieving a 100% renewal rate for agricultural machinery.

At the same time, it is necessary to take measures to develop business in the village (figure 2).



Note: compiled by the authors on the basis of sources (Liu Y., Zhang H., Ning M. et al.; Donner M., De Vries H.) [14,15]

Figure 2 – Development of business in the village

Indicators for Strategic Goal 1: raising public awareness; enhancing the knowledge of local entrepreneurs; boosting the income of small and medium-sized enterprises; increasing the market share of locally-produced bread, buns, and confectionery; growing the proportion of locally-sourced building materials in overall retail sales; expanding the share of locally processed fruits and vegetables; improving resident satisfaction with available services.

2. Improving the standard of living in rural areas based on the social development of rural areas, in particular education, health care, social support, culture and art facilities. As well as

providing conditions for labor and social activity of the population of rural areas. It also includes promoting women's entrepreneurship and leadership. Ushterek's proximity to Aksu city compared to other villages has facilitated the development of public-private partnerships, driven by investment and philanthropy. Social development efforts should focus on increasing public awareness of financing opportunities, fostering youth entrepreneurship, and attracting qualified young professionals to the village. Additionally, improving household and car maintenance services is crucial.

3. Improving Ushterek village's engineering infrastructure and maintaining it at an optimal level while preserving a favorable environmental condition is essential. The village currently has a relatively high standard of engineering and transportation infrastructure. The rural akimat aims to enhance the living environment through the sustainable development of infrastructure and life support systems. Key initiatives include major repairs and modernization of the electric grid to ensure reliable energy supply and enhancing transport services. To align with urban living standards, the establishment of a drainage system and financing for village gasification are needed. The positive migration flow and high natural population growth in rural areas highlight a housing shortage that needs to be addressed.

#### Discussion

If you take any village in Kazakhstan, except for a few places where a large farmer invests in his business and develops it, and is socially responsible (Rodina village, Galitskoe village), you will mostly encounter the same problems of socio-economic nature.

If we generalise, we can single out that agriculture in Kazakhstan is characterised by insufficient labour productivity, moral deterioration of machinery and technologies, inefficiency and low efficiency of most enterprises receiving state support, lack of equipped social infrastructure in villages.

The availability of land (suitable for agriculture), natural resources, and the country's location gives a huge potential for the development of this sector. Agriculture remains the main pillar of regional economies and provides employment for almost every fifth worker. Poverty also tends to be concentrated in rural areas with subsistence agriculture.

At present, the focus on GMO-free agricultural products is a trend for consumers. Consumers, represented by society as a whole, set the trend towards sustainability, thus shaping the market offer. Strategically oriented companies have started to gradually change their business model, focusing on ecologisation. This was primarily due to the signing of the Paris Agreement.

The current low productivity is not coordinated with the potential of the sector, which has enormous natural advantages, including vast pastures and significant areas of arable land suitable for mechanisation. Kazakhstan is located in close proximity to more than half of the world's population living in some of the world's fastest growing economies. Accordingly, by shifting the focus from farming to the development of food systems based on value chains, Kazakhstan can take advantage of new opportunities for job creation and income growth.

#### Conclusion

These priority directions given above solve the main problems facing the village and rural population:

1. First of all, the proposed directions in the field of business are a guideline for future entrepreneurs and for diversification of business of small firms. These proposals will increase economic growth in the village, improve the image of the village and increase the attractiveness of the village.

2 Providing the region with agricultural products, as well as exporting products, are fundamental tasks for improving the socio-economic situation of the village and the region as a whole.

3 Proposal to improve the social sphere, problematic issues were identified and priority areas of development were developed related to the development of health care (increase in services), education (equipment) awareness of the rural population about the programs, actions to support youth, women's entrepreneurship. Field trips, excursions to creative schools, camps, for employment of children with useful things.

4. Proposal related to providing the village with engineering infrastructure facilities and maintaining them at a proper level. In the very priority we first of all speak about roads, i.e. transport infrastructure providing accessibility to rural areas. Also maintenance of existing facilities of industrial and social purpose at a proper level. Providing rural areas with a drainage system and gasification of the village will allow Ushterek village to approach the standards of urban life and improve the quality of life.

5. The future of rural areas is the villages with developed industrial and social infrastructure, stable self-sufficient economy, import-substituting production, with a good image due to quality and useful products, safe environment, with a high standard of living.

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**Conflict of interest.** The authors declares that there is no conflict of interest.

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