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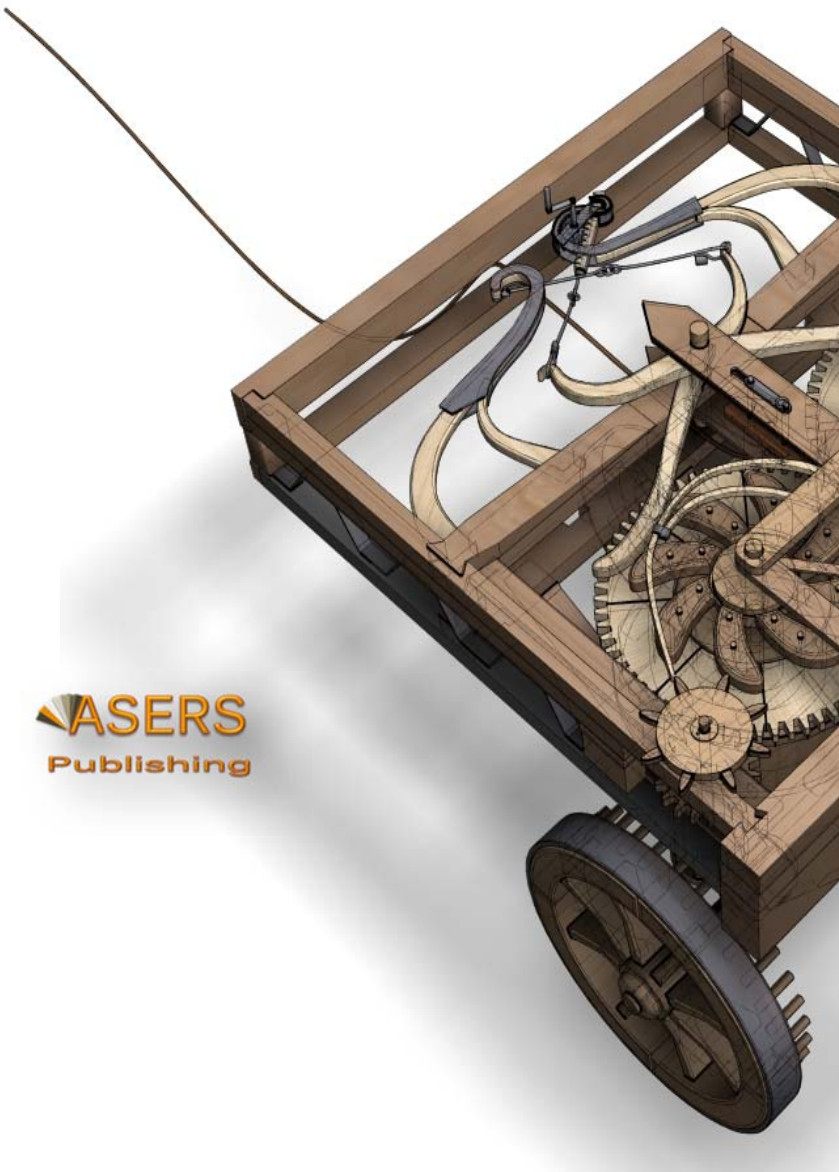

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Call for Papers
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Journal of Environmental Management and Tourism

Journal of Environmental Management and Tourism is an interdisciplinary research journal, aimed to publish articles and original research papers that should contribute to the development of both experimental and theoretical nature in the field of Environmental Management and Tourism Sciences.

Journal will publish original research and seeks to cover a wide range of topics regarding environmental management and engineering, environmental management and health, environmental chemistry, environmental protection technologies (water, air, soil), pollution reduction at source and waste minimization, energy and environment, modeling, simulation and optimization for environmental protection; environmental biotechnology, environmental education and sustainable development, environmental strategies and policies, etc. This topic may include the fields indicated above, but are not limited to these.

Authors are encouraged to submit high quality, original works that discuss the latest developments in environmental management research and application with the certain scope to share experiences and research findings and to stimulate more ideas and useful insights regarding current best-practices and future directions in environmental management.

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Main Directions of Increasing Competitiveness Considering Specificity of Agriculture and Its Sustainable Development

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Abstract:

Agriculture is one of the key sectors of the economy of Kazakhstan, providing food and economic security, as well as the labor potential of the country. Increasing the competitiveness of domestic agricultural products and products of its processing is closely related to the need to promote and position domestic products both in the domestic market and export markets. The analysis of the state of the Kazakh market of agricultural products at the present stage is carried out and alternative strategies are proposed to increase production efficiency based on the digitalization and sustainability of agriculture.

Keywords: agro-industrial complex; agriculture; government support; environment; crediting; competitiveness; financing; sustainability.

JEL Classification: Q14; Q51.

Introduction

Being one of the priority directions of development of the republic's economy, agriculture has huge potential and large reserves, and the various climatic conditions of Kazakhstan allow growing almost all crops of the temperate heat zone and developing animal husbandry. Almost one quarter of the entire territory of the country is

characterized as steppe lands, half as semi-desert and desert territories, the rest of the territory is foothill. 80% of the country's territory is characterized as agricultural land, which is more than 200 million hectares. However, of this territory, only 40% or 96 million hectares are used for agricultural use.

Despite a rather low share of agricultural processing, Kazakhstan is one of the largest producers and exporters of some types of products such as cereals and flour.

Main part

Agriculture of the Republic of Kazakhstan is traditionally represented by two main sectors:

- animal husbandry - develops in such areas as the breeding of cattle (meat and dairy production), sheep, horses, camels, pigs and goats. Poultry farms account for a significant share;
- crop production is the basis of agriculture in Kazakhstan. The largest share is occupied by spring wheat, which is sold not only in the domestic but also in the foreign market.

1. Literature Review

According to V.L. Somov, the sector in question is one of the most important in the economy; the economic, political and social situation in the region largely depends on its state. The introduction substantiates the relevance of a specific economic and statistical analysis at the regional level of agricultural production, arising from the ongoing transformations in the economy, economic sanctions of a number of Western countries and countersanctions (Somov 2019).

According to Yu. Pronina, G.I. Dubina, A.A. Knyazkina, agriculture is an industry characterized by a high dependence on external factors. There is a need to create an effective system of support for the industry - the most important mechanism of state regulation of the national economy (Pronina, Dubina and Knyazkina 2018).

The stable positive dynamics of the development of agriculture, according to the studies of D.Yu. Samygin, S.V. Keleinikova contribute to the preservation of the high investment attractiveness of the industry (Samygin and Keleinikova 2018).

A.K. Subaeva in his scientific publications describes a feature of new crop and livestock technologies - this is the development of methods of managing the production process in the agricultural sector, providing for the impact on agricultural objects in the process of their cultivation and use, which will increase economic productivity through the use of innovations (Subaeva 2018). The results of the key areas of development of biotechnology, nanotechnology, artificial intelligence systems and global information networks are: the use of cosmomonitoring and geoinformation systems, the creation of domestic devices for the qualitative and quantitative analysis of DNA and RNA, the production and use of transgenic farm animals, technologies for managing the agricultural landscape through crop rotation, soil cultivation systems , fertilization and plant protection, determined by the characteristics of the variety.

M.L. Vartanova, E.V. Drobot in their studies, they analyze the features of the introduction and development of effective, digital technologies in agriculture, where low productivity and high costs are highlighted as the key problems of the agro-industrial complex. The authors also highlighted promising areas of digitalization of the agro-industrial complex (Vartanova and Drobot 2018).

The presence of a well-functioning information and methodological system determines the effectiveness of the management process, according to P. K. Gazimagomedova, which includes the collection of data, their operational processing, making optimal decisions by the subjects involved in the food supply of the region (Gazimagomedova 2018).

D.E. Morkovkin emphasizes the need to improve the system of state support for agricultural enterprises in order to ensure national interests, food security, increase competitiveness, as well as adapt state support for agriculture to international requirements and standards. External risks are systematized and ways to overcome resource constraints in the development of the agricultural sector are outlined. Based on the results of the study, the goals of strategic management of the development of the agro-industrial complex in the context of import substitution were formulated (Morkovkin 2018).

Agriculture is one of the riskiest sectors of the economy, since the dependence of the conditions and final results of agricultural activities on random, most often natural and climatic factors is very high. Therefore, the use of agricultural insurance programs acquires a special role in the solution to minimizing unforeseen financial losses (Eldieva 2018).

According to B.K. Goodwin, M.L. Vandeveer, J.L. Deal agricultural insurance alone, without government support, is not able to provide adequate protection for agricultural producers. The financial participation of governments in agricultural insurance programs is due to the need to maintain the profitability of agricultural production, which in turn increases the investment attractiveness of the industry and prevents the outflow of

resources from it in the long term, and also helps to ease social, political and ethnic tensions in society (Vandeveer, Goodwin and Deal 2019).

The influence of risk factors considered by T.A. Verezubova, Z.A. Baimagambetova, A.M. Mukhitbekova is closely interrelated with the efficiency of agricultural enterprises, as a result of which it is usually much higher than in other industries and is difficult to predict. In the future, especially in market conditions, which in themselves are sources of non-determinism of processes due to the instability of the market situation, as well as increasing political and economic shocks in the world space (Verezubova, Baimagambetova, Mukhitbekova 2018).

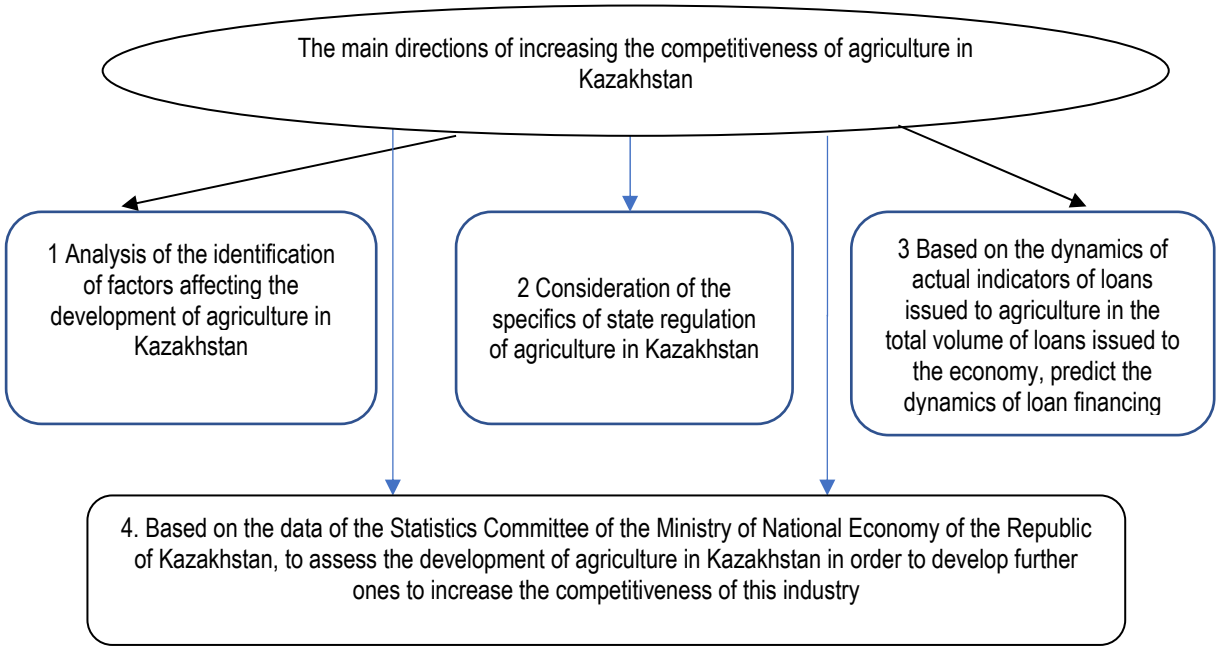
To increase the profitability of agricultural producers, improve the well-being of workers in agriculture and reduce the gap in the standard of living in the city and in the countryside, it is necessary to expand state participation in solving rural problems, improve agricultural policy, primarily through strengthening state support and pricing, increasing responsibility for commitments (Vozhdaeva, Volkov and Kozlov 2019).

Serious problems that agricultural production constantly faces (including climatic features), as well as its specific features, increase the lag of agricultural enterprises in the field of using modern management tools. Strategic planning has not yet entered the practice of most agribusiness entities. However, without developing a scientifically grounded strategy for the development of the industry at all levels of management, it is impossible to overcome the crisis and lay the foundation for the advanced development of the agricultural sector of the economy.

2. Research Questions and Scientific Novelty

To assess the competitiveness of agriculture in Kazakhstan, it is necessary to analyze the influence of various factors on agriculture in order to increase the level of competitiveness of this industry for the further development of measures of state support for agricultural producers.

Figure 1. Research questions



Source: compiled by authors

Scientific novelty. The need to regulate various factors affecting the competitiveness of the agricultural sector in order to reduce losses in agriculture based on the use of trend analysis to predict the dynamics of credit financing is substantiated.

3. Methodology

In the Address of the President of the Republic of Kazakhstan K. Tokayev to the people of Kazakhstan dated September 2, 2019 "Constructive public dialogue is the basis of stability and prosperity in Kazakhstan" it is noted that the urgent task is to support and attract investors to agriculture, including foreign ones (Tokayev 2019). Significant funds are allocated from the state budget to support and develop the countryside. Economic transformations have predetermined government policy, in which its support should play a greater role in

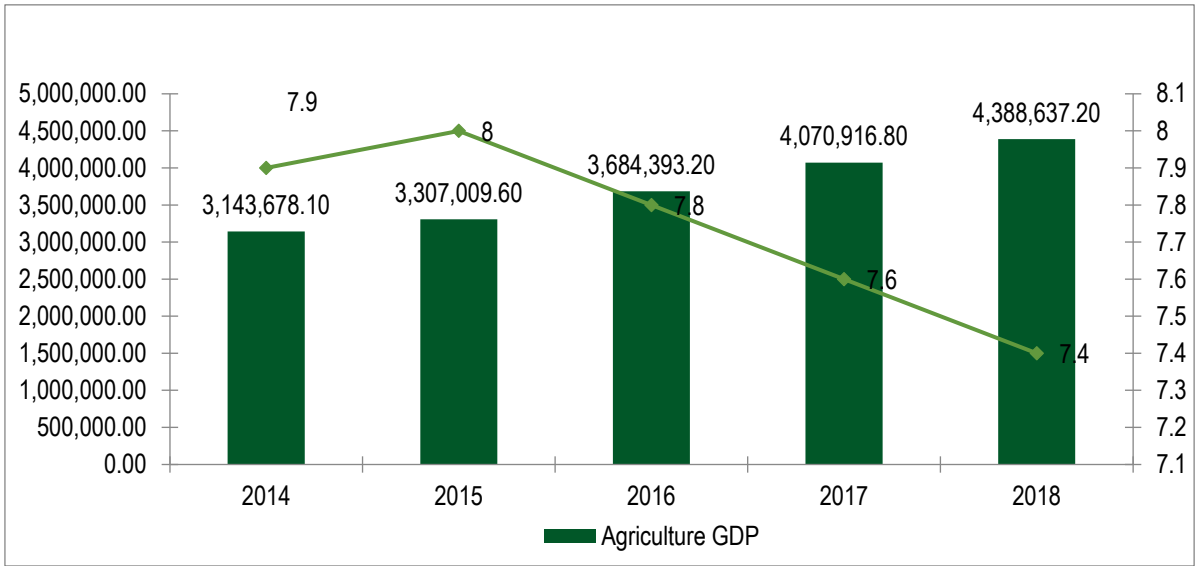
comparison with other sectors. The priority in the development of agricultural production should be indicators of production efficiency, competitiveness of domestic products. The radical changes that have taken place over the years of reforms in the agrarian sector of the economy have changed the role and importance of factors, mechanisms and sources that determine the nature of reproduction processes. The current situation, characterized as a reproduction crisis, requires effective management of financial resources, capital circulating in the industry's economy. The importance of developing theoretical and methodological foundations for effective financial management of the reproduction process of an agricultural enterprise and its financial support is growing.

The issues of increasing competitiveness in the agro-industrial complex by improving the mechanism for the development of financial relations and their individual elements are reflected in the works of many domestic scientists: A.A. Nurumov (2018), V.V. Grigoruk (2017), F.A. Shulenbaeva (2017), M.I. Sigarev (2017) and others.

These works are of great methodological and practical importance, since they, in particular, examine the theoretical foundations of the economic policy pursued, show the results of its practical implementation, examine the experience of countries with a developed market economy in organizing financial relations. All of the above necessitates a comprehensive study of the problems of increasing the competitiveness of the agro-industrial complex within the framework of the State Program for the Development of the Agro-Industrial Complex of the Republic of Kazakhstan for 2017-2021 (State program of the agro-industrial complex).

The agriculture of the Republic of Kazakhstan has prospects for further development: the availability of land, strengthening of the export position of the oilseed and meat sectors, the largest exporting country in the world for grain and flour. But despite this, the current situation shows that the share of agricultural GDP in the country's economy is an insignificant share (Figure 2).

Figure 2. The share of GDP in agriculture in the country's economy, in million tenge



Source: compiled by authors according to data of the Committee on Statistics of the Republic of Kazakhstan

According to Figure 2, agriculture creates an average of 7.7% of the country's gross domestic product. There is a downward trend in the share of GDP in agriculture in the country's economy. In 2018, this figure was 7.4%, having decreased by 0.5% compared to 2014. The decline in the share of agriculture is insignificant, but this trend is stable and requires better and more efficient management of the financing process in the industry.

As we know, the key to the sustainable development of an enterprise is its optimal financial support, which means the provision of the enterprise with basic and current assets, own and borrowed financial resources, sufficient for the release of the specified volume of production. Financial support assumes uninterrupted production process and product sales, minimization of enterprise costs. This is entrusted to managers, who must ensure a reliable supply of the enterprise with the necessary resources, especially for the successful development of the main production. This involves studying the prices and quality of the supplied equipment and raw materials, the reputation of suppliers, the promptness and punctuality of deliveries, as well as providing the enterprise with developed means of communications, heat, water, electricity, etc.

The process of financial support can be viewed from external and internal positions: from the point of view of the investor, the turnover of funds begins with the expenditure of funds during their investment and ends with a

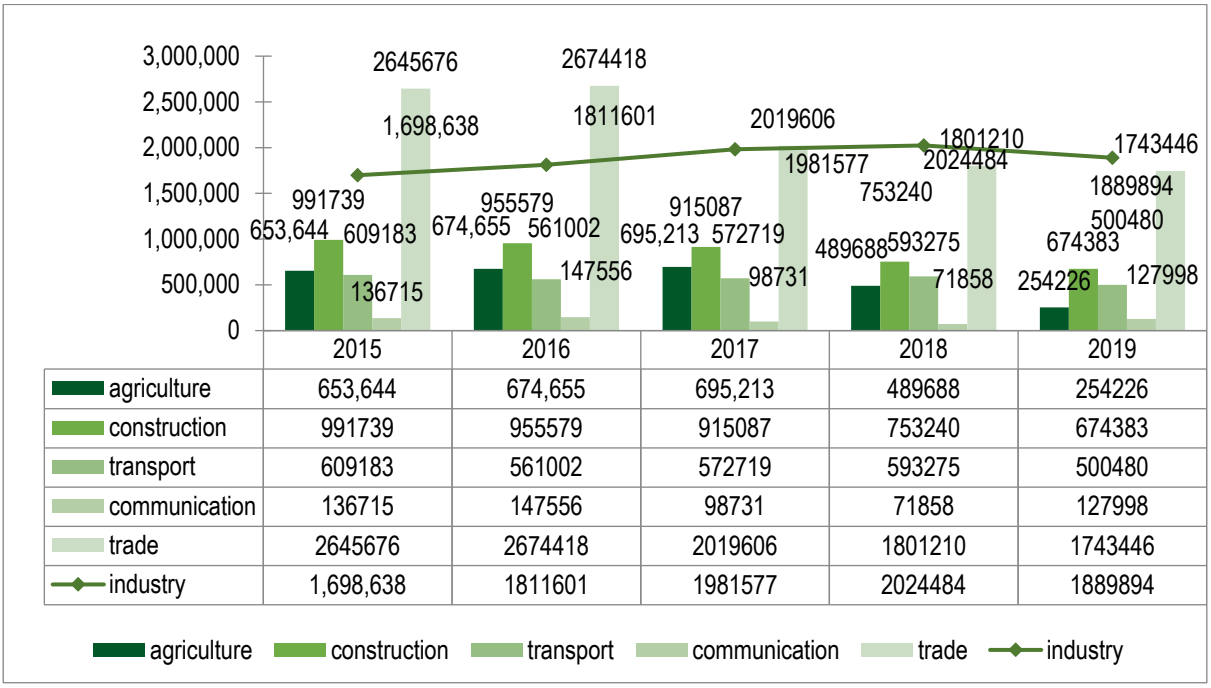
return flow; from an internal standpoint (from the standpoint of the economy itself) - first, funds are attracted and there is an inflow, and then spent.

The process of financial support is based not only on the use of our own financial resources, but also involves the attraction of external sources of financing, including credit, in order to ensure competitiveness at the macro, meso and micro levels (Uakhitzhanova 2017).

As practice shows, the banking sector of Kazakhstan plays a significant role in agriculture, but its influence is largely limited to large farms and enterprises.

According to the Committee on Statistics, loans from second-tier banks by sectors of the economy from 2015 to 2019 are characterized as follows: loan investments of second-tier banks in the sector of the economy in 2019 amounted to 13,863.8 billion tenge and increased compared to 2015 by 9 ,4%. The largest shares of the total volume of loans are concentrated in trade - 12.6%, industry - 13.6%, the smallest share in agriculture - 1.8% (Figure 3).

Figure 3. Loans from second-tier banks by sectors of the economy of the Republic of Kazakhstan for 2015-2019, in million tenge



	2015	2016	2017	2018	2019
agriculture	653,644	674,655	695,213	489688	254226
construction	991739	955579	915087	753240	674383
transport	609183	561002	572719	593275	500480
communication	136715	147556	98731	71858	127998
trade	2645676	2674418	2019606	1801210	1743446
industry	1,698,638	1811601	1981577	2024484	1889894

Source: compiled by authors according to data of the Committee on Statistics of the Republic of Kazakhstan

For comparison, in 2008 the share of loans to agriculture was 3.4% of the total amount of loans to the economy. In the dynamics of loan financing by second-tier banks in 2015-2019, a decrease of 61.1% can be traced.

As of 01.01.2019, the total number of large and medium-sized farms, that is, legal entities, amounted to 17,315 units or 4% of the total number of registered enterprises / legal entities representing other sectors of the economy (Table 1).

As the data from Table 1 show, almost 40% of registered agricultural enterprises do not work at all, they simply exist on paper. Even out of 9,331 actually operating enterprises, about 15% are temporarily decommissioned.

According to the Committee on Statistics of the Ministry of National Economy of the Republic of Kazakhstan, as of the end of 2019, about 17,971 legal entities engaged in agricultural activities were registered in Kazakhstan (4.0% of all legal entities registered in Kazakhstan). At the same time, the number of operating legal entities engaged in agricultural activities is 13,194 organizations. Over the past three years, the number of operating agricultural organizations has increased by 3,202 organizations (34.7%).

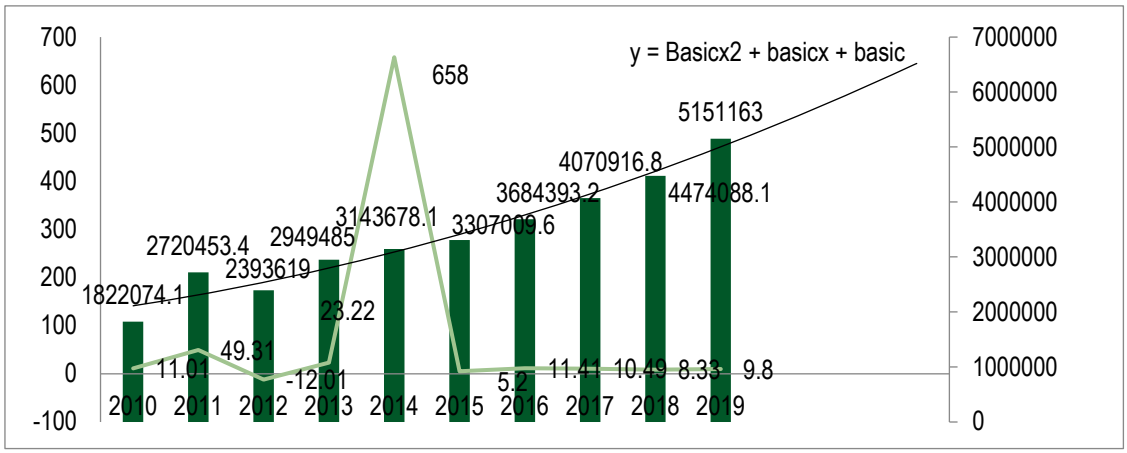
Table 1. Share of agricultural enterprises in the national business structure of Kazakhstan

Indicator	Total	of them:				
		acting	not active yet (new)	active	temporarily active	in the process of liquidation
Agricultural enterprises	17315	12420	1322	6908	4190	205
Small <50 people	16955	12065	1317	6560	4188	204
Average from 51-250 people	301	296	5	290	1	1
Large> 251 people	59	59	-	58	1	-
All enterprises in the RK	433774	279720	43373	162989	73358	5047
Small <50 people	424796	271208	43287	154664	73257	4997
Average from 51-250 people	6490	6105	65	5964	76	35
Large> 251 people	2488	2407	21	2361	25	15

Source: compiled by authors according to data of the Committee on Statistics of the Republic of Kazakhstan

The gross output of agricultural products in the Republic of Kazakhstan in monetary terms demonstrates growth over the past 5 years. However, the dynamics of growth is declining (Figure 4).

Figure 4. Gross agricultural output in the Republic of Kazakhstan for the period from 2010-2019, in million tenge

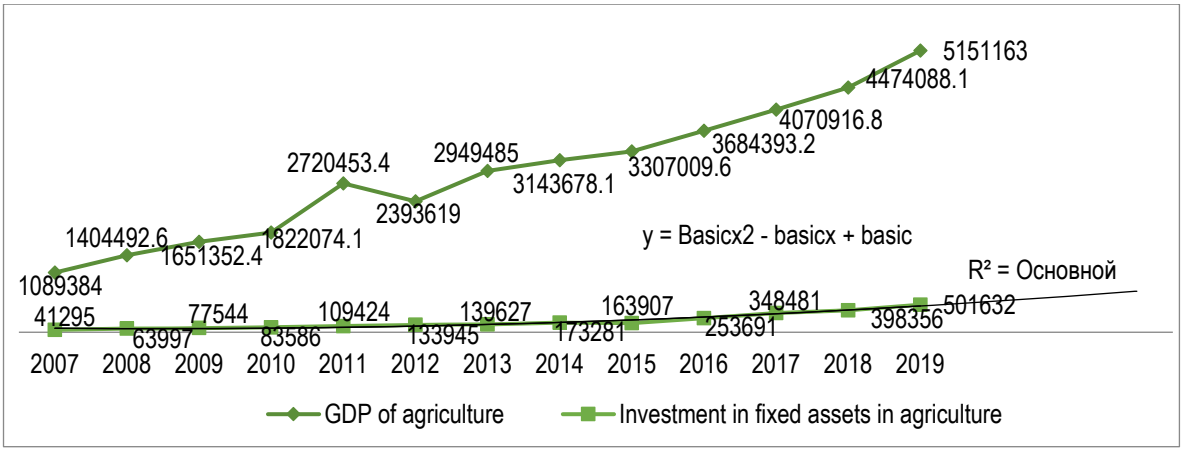


Source: compiled by authors according to data of the Committee on Statistics of the Republic of Kazakhstan

In general, in 2019, the industry attracted 501.6 billion tenge of investments, which is 41% more than last year.

To improve the investment climate at the end of 2017, the Ministry of Investment and Development of the Republic of Kazakhstan approved the National Investment Strategy for 2018-2022.

Figure 6. Indicators of gross agricultural output and investment in fixed assets in dynamics for 2007-2019, in million tenge



Source: compiled by authors according to data of the Committee on Statistics of the Republic of Kazakhstan

More than half of all investments fell on the three main granaries of the Republic of Kazakhstan:

- North Kazakhstan region of North Kazakhstan region (25.7% at once);

- Kostanay region (13.9%);
- Akmola region (11.2%) [Official resource: www.energyprom.kz.

Note that these three regions provided 72% of the total gross harvest of grain and legumes at the end of last year and immediately more than 80% - directly wheat (Table 2).

Table 2. Gross agricultural output in the regional aspect for 2014-2019 in million tenge

Region	2014	2015	2016	2017	2018	2019
Republic of Kazakhstan	3 143 678,1	3 307 009,6	3 684 393,2	4 070 916,8	4 474 088,1	5 151 163,0
Akmola	268 354,3	290 893,2	348 198,5	378 170,9	406 690,9	487 473,9
Aktuibinsk	157 258,0	165 244,3	183 965,3	200 631,3	234 336,4	271 561,8
Almaty	535 445,5	551 101,1	597 308,3	630 931,6	733 974,3	846 581,4
Atyrau	56 263,1	58 765,5	61 612,9	61 129,6	66 878,3	76 686,5
West Kazakhstan	103 539,8	106 544,4	131 015,8	140 043,8	139 918,3	171 145,1
Zhambyl	218 577,7	218 726,5	237 065,9	251 317,0	268 224,0	325 748,0
Karaganda	179 350,9	197 273,1	229 348,2	251 014,4	277 656,3	334 008,1
Kostanay	266 885,9	294 608,2	319 037,7	368 099,4	386 655,6	397 828,6
Kyzylorda	69 595,8	79 186,5	80 633,3	88 673,9	103 923,7	128 562,1
Mangistau	9 074,6	11 734,3	12 466,1	13 722,5	15 656,4	19 674,2
South Kazakhstan	419 687,1	426 894,4	480 399,3	505 293,4	-	-
Pavlodar	134 993,4	152 407,9	171 542,2	204 421,9	228 492,9	236 421,8
North Kazakhstan	350 269,2	380 814,2	411 485,6	498 410,4	514 686,8	610 701,3
Turkestan	-	-	-	-	548 706,9	614 006,3
East Kazakhstan	366 586,9	366 973,1	415 039,0	472 008,0	514 969,8	591 980,4
Astana city	2 870,9	2 416,9	1 032,9	1 308,7	1 051,2	805,3
Almaty city	4 925,1	3 426,1	4 242,2	5 740,0	6 594,5	6 799,4
Shymkent city	-	-	-	-	25 672,0	31 178,7

Source: compiled by authors

4. Sustainable Development of Agriculture

The specificity of agriculture lies, first of all, in the fact that the production process here is associated with the land and with living organisms: farm animals and plants, which act as objects and means of labor. At the same time, a significant part of the production cycle is a targeted impact on living organisms: growing them to certain conditions, often with interruptions caused by natural climatic conditions. As a result, the production cycle in agriculture is much longer than in other sectors.

In 2017, the Ministry of Agriculture of the Republic of Kazakhstan developed a new State Program for the Development of the Agro-Industrial Complex for 2017-2021, which was developed on the basis of a similar state program for 2016-2020, but changes and additions were made.

The main priorities of the new Program were the saturation of the domestic market and the development of the export potential of domestic products, the maximum involvement of small and medium-sized farms in agricultural cooperation, the efficient use of water resources and the development of trade and logistics infrastructure. Several long-term sectoral programs were adopted in seven priority areas of the agro-industrial complex until 2027, among which the main long-term priority for the development of the agro-industrial complex was defined as meat animal husbandry.

Ensuring the country's food and economic security, the social significance of agriculture and its dependence on natural, climatic and many other external factors require state support for this sector of the economy.

The high degree of dependence of crop production on weather conditions is the main reason for the development and implementation of index schemes for insurance of risks of agricultural organizations, which are based on the frequency of occurrence of certain adverse weather events, their size and intensity.

World experience shows that in most countries this support is carried out through various channels, among which insurance occupies not the last place, the indicators of which are shown in Table 3 using the example of the EU member states.

Table 3. Indicators of Agricultural Insurance in the EU Member States for 2017

Country	Insurance coverage,%	Insurance subsidies	
		M€	% insurance premium
Austria	78	24	46
Cyprus	100	4,4	50
Czech Republic	35	7	30
Germany	43	0	0
Italy	8	180	67
Latvia	less 1	0,05	50
Portugal	22	32	68
Spain	26	232	41
Total in the EU		497	32

Source: compiled by authors according to website www.actuary.kz

Taking the example of the EU member states, it is clear that in Cyprus the insurance coverage is 100%, in Austria - 78%, in Germany - 43%, in Spain - 26%, etc.

According to the National Union of Agricultural Insurers, the main group of risks that caused insured events are phenomena associated with drought, mainly atmospheric, and dry winds. They account for more than 72% of payments. The next in importance is the risk of frost, which led to 21% of payments, then hail - about 5% of payments, and closes the list with freezing of winter crops - less than 2%.

Therefore, there is a definite connection between the receipt of finished agricultural products and such factors of influence as - the average air temperature in the summer;

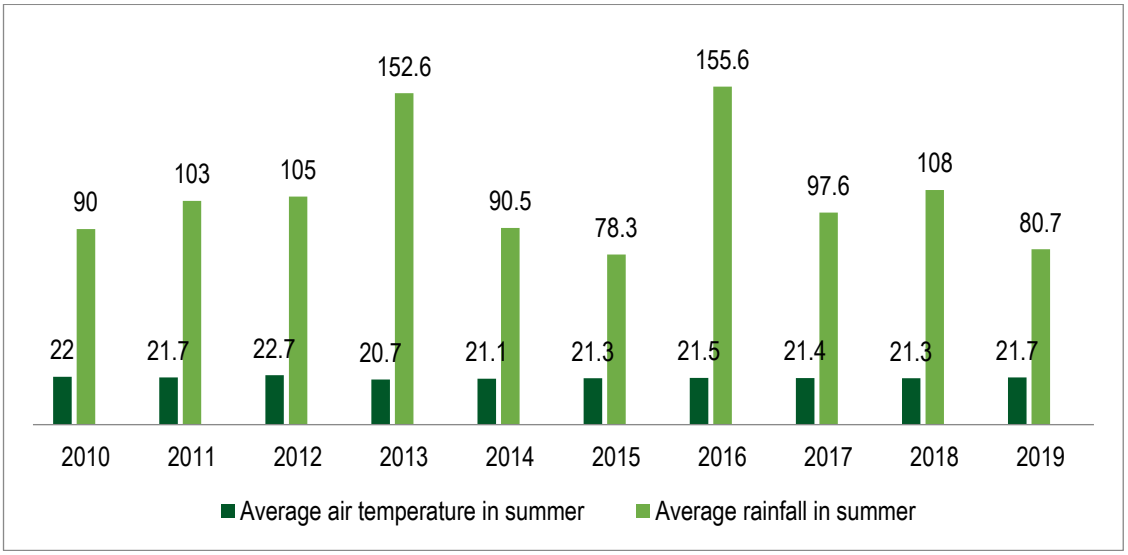
- the average amount of precipitation in the summer;
- disposal of pollutants.

The productivity of agricultural production depends on many determinants, all of these determinants can be divided into two groups: natural and economic (Aimurzina and Kamenova 2017).

1 Crop production

Gross harvests of agricultural crops depend on the first order determinants - the size of the sown area and yield. Productivity depends on the average air temperature, humidity level, that is, the average amount of precipitation in the summer (Figure 7).

Figure 7. Dynamics of indicators of average air temperature and average amount of precipitation in summer



Source: compiled by authors according to website http://www.kazhydromet.kz

At the same time, each of these determinants is associated with second-order determinants of the level of arable land use, the nature of land ownership rights, the amount of crop loss from unfavorable conditions, soil fertility, provision of material and technical conditions, and many others. Productivity is determined by the level of agricultural technology, which, other things being equal, depends on the quality of work of specialists, individual workers and their teams, on the level of labor organization and management.

2 Livestock

Livestock production depends on two first-order determinants - livestock numbers and livestock productivity. But each of these determinants is in a certain connection with others - the level of feeding, the balance of the feed ration, the conditions for keeping animals and poultry, the level of veterinary services, the qualifications of workers, their interest in the final results, and others. In the economic modeling of agricultural production, even such components of effective production as "maintenance, payment systems there, the level of labor process management, optimal production rates, the system of material incentives" and others are considered. The total number of determinants affecting the volume of agricultural production can be infinitely large, some of these determinants defy accounting and formalization.

Currently, the State Program for the Development of the Agro-Industrial Complex for 2017-2021 is being implemented, aimed at increasing the competitiveness of the agro-industrial sector, the widespread involvement of small and medium-sized farms in agricultural cooperation, the growth of agricultural exports and the efficient use of water and land resources.

In general, this program continues to implement the tasks and achieve the indicators established by the Concept for the transition to a "green economy". In particular, it was established:

1) reduction of irrigation water consumption per 1 ha of irrigated area by 20% compared to 2015 (decrease from 9180 m3 in 2015 to 7348 m3);

2) the volume of water in the systems of repeated and recycled water supply in industry:

- repeated from 0.69 km3 in 2015 to 0.77 km3;
- turnover from 7.3 km3 in 2015 to 7.62 km3.

To achieve the above indicators and indicators, the following activities are planned:

- restoration of the irrigation infrastructure on an area of 610.0 thousand hectares of regularly irrigated land;
- restoration of the infrastructure of estuary irrigation lands on an area of 368 thousand hectares;
- reconstruction of the 41st emergency reservoir;
- restoration of the collector and drainage network (250 km) and vertical drainage wells (519 units);
- introduction of water-saving irrigation methods (drip, sprinkling) on an area of 260 thousand hectares.

At the same time, labor productivity in agriculture lags far behind other sectors of the economy, and the yield of the main crops is not comparable to the indicators of developed countries (for example, the wheat yield in 2015 was 1.33 t / ha, while the world average was 3.75 t / ha. In addition, agriculture is the most water-intensive sector, besides with the largest losses of water during its transportation and use. As a result, agriculture in Kazakhstan is unattractive for investment and has difficulties in financing, which further exacerbate the existing problems.

The main reason for the underutilization of irrigated lands is significant wear and tear and failure of irrigation and drainage systems, accompanied by deterioration in the land reclamation state. This is due to the fact that on the irrigation tracts, divided between many peasants, farm and other farms, many inter-farm, on-farm irrigation and drainage systems were left without organized maintenance and care. This is also one of the main reasons for the deterioration of the ameliorative state of irrigated lands and the structure of the composition of lands.

A significant problem in irrigated agriculture is also the lack of water metering devices and control distribution structures on irrigation canals. As a result, there is an uneven use of irrigation water depending on the location of the irrigated areas in relation to the main canal. Farmers, whose fields are located in close proximity to the main canal, receive an abundance of water, and as land plots are removed, problems with irrigation water arise.

In accordance with the new Strategic Plan until 2025, the policy in the agro-industrial complex will be focused on increasing agricultural productivity, deepening the processing of agricultural products, ensuring the country's food security and increasing export-oriented environmentally friendly products. Over 5 years, it is planned to increase labor productivity and the volume of exports of processed products by 2.5 times compared to 2017.

5. Application Functionality

Relations with second-tier banks have their own complexities. An analysis of lending to agriculture by credit institutions shows that financing agricultural enterprises is accompanied by a high degree of risk. And as a consequence, the main problem in lending is the provision of collateral necessary to obtain loans.

Given this factor, credit institutions in most cases reject incoming applications, or require liquid collateral in an amount significantly exceeding the loan amount, and also apply high interest rates. The possibility of obtaining one or another type of loan is also determined by the financial situation of the subjects of the agricultural sector. Despite this, the attraction of bank loans is often viewed as the best method of external financing of investments if the agricultural producer cannot meet his needs from his own funds.

A distinctive feature of the modern credit policy of banks is the support of large enterprises. And small business is practically cut off from loans by high interest rates or strict requirements for collateral, in terms of a loan agreement - a pledge.

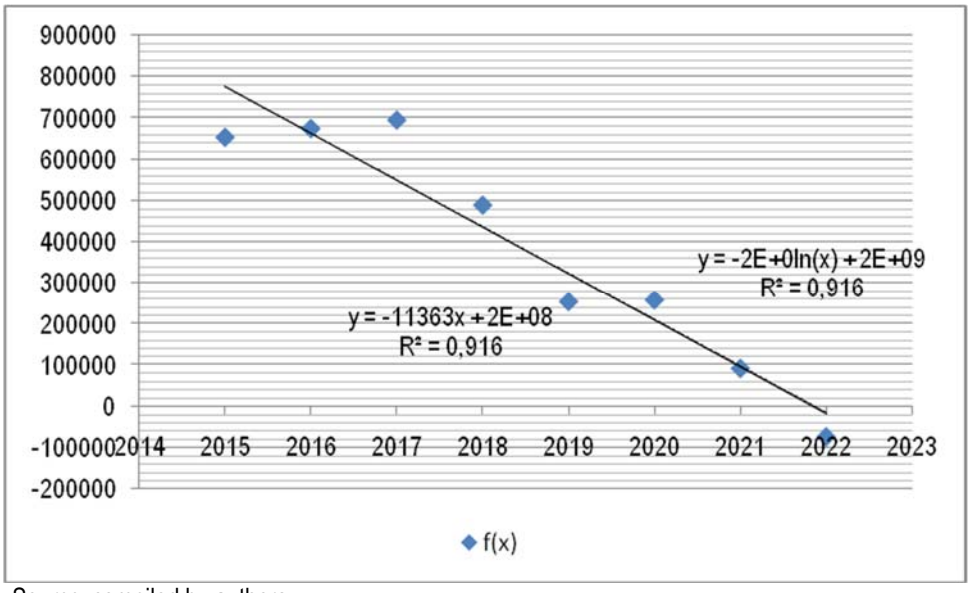
According to the Ministry of Agriculture of the Republic of Kazakhstan, one of the main problems of credit provision for the subjects of the agricultural sector are:

- insufficient financial resources to fully meet the needs of rural producers in credit funds;
- lack of provision of the rural population and agribusiness entities with the necessary package of banking services, due to the lack of branches and representative offices in rural areas of second-tier banks. (Shulenbaeva, 2017)

Based on the dynamics of the actual indicators of loans issued to agriculture in the total volume of loans issued to the economy, as well as applying technical analysis based on an exponential and linear trend line, we will predict the dynamics of credit financing until 2023.

For the indicator “loans to agriculture” a logarithmic trend line model was chosen. The logarithmic trend of the level of dynamics of loans issued to agriculture is shown in Figure 8.

Figure 8. Forecast of the dynamics of credit financing of agriculture, million tenge



Source: compiled by authors

Analysis of this graph shows that the model of the time series, selected in the form of a logarithmic trend, in principle adequately describes the real process, the coefficient of accuracy of the approximation is 0.916.

The logarithmic calculation of forecasting the indicator "loans to agriculture" is represented by the following equation:

$$y=-2E+0Ln(x)+2E+09 \quad (5.1)$$

where

y - the predicted value of the indicator;

x – the actual values of the indicator.

The optimal model is also a linear trend with an approximation factor of 0.916. The linear calculation of forecasting the indicator "loans to small businesses" is described by the function:

$$y=-11363x+2E+08 \quad (5.2)$$

where

y - the predicted value of the indicator;

x – the actual values of the indicator.

The results of the forecast indicators of credit financing are presented in Table 4.

Table 4 Forecast of indicators of credit financing of agriculture by second-tier banks

Indicator	2020	2021	2022	2023	2024
Loans to agriculture, mln. tenge	258344	92342	-73162	-181988	-291228

Source: compiled and calculated by authors

Mathematical modeling data show a negative situation and the forecast for the amount of loans issued to agriculture by second-tier banks by 2024 is negative, which puts the search for new sources of attracting financial resources.

Conclusion

Analyzing the trends in the financial resources of economic entities, the authors came to the conclusion that when developing the concept of financial stability of agricultural producers and forming their financial strategy, it is necessary to develop a system for forming the required amount of financial resources for strategic development. The main stages in the development of the proposed methodology, considerind into account the specifics of the industry are:

- determination of the necessary need for financial resources, considering own and borrowed funds;
- determination of the amount of own financial resources from internal sources (net profit, depreciation deductions);
- substantiation of the volume of attracted own financial resources from external sources;
- substantiation of the volume of borrowed financial resources at the expense of long-term obligations (long-term loans);
- justification of the volume of borrowed financial resources at the expense of short-term liabilities (short-term loans, taking into account accounts payable);
- substantiation of the amount of state support within the framework of targeted programs, at the expense of local budgets (Aimurzina and Kamenova 2017).

As the results of the study have shown, in order to ensure the necessary increase in own financial resources from internal and external sources, it is necessary to seek opportunities to increase sales and reduce costs, apply accelerated methods of depreciation, and channel up to 60% of net profit for reproduction purposes. To account for funds intended to cover investment costs, it is necessary to amend the accounting legislation to allow the opening of a special “investment” account for financing strictly targeted purposes (Solomakhin 2018).

The mechanism of financial support for agriculture should imply the formation of competitive agricultural production. In order to create an effective financing mechanism, conditions are needed in which the state should play a central role. Taking into account the peculiarities of the agricultural sector, it should be noted that the classification of funding sources also has a number of specific features. Agriculture requires a special approach in the selection of funding sources, which have a number of advantages and disadvantages (Bakhtiyarova 2017).

A combination and a combination of such funding sources is needed, which is a pivotal step in a funding mechanism. In this regard, the financing mechanism and the importance of state support for agricultural producers should be aimed at stimulating more productive investments and profitable production.

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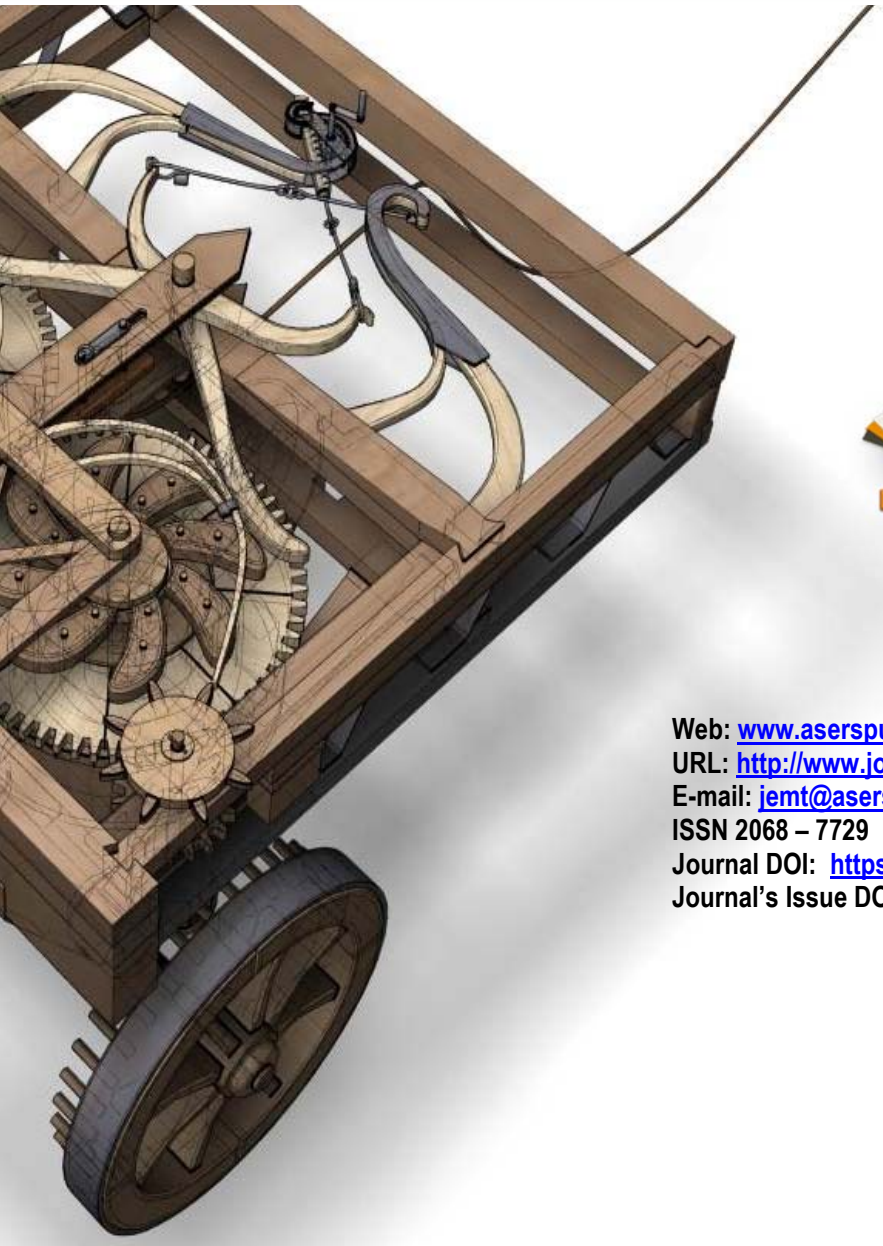

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