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FOOD SECURITY AS A PRIORITY OF AGRICULTURAL POLICY

АЗЫҚ-ТҮЛІК ҚАУІПСІЗДІГІ АГРАРЛЫҚ САЯСАТТЫҢ БАСЫМДЫҒЫ РЕТІНДЕ

ПРОДОВОЛЬСТВЕННАЯ БЕЗОПАСНОСТЬ КАК ПРИОРИТЕТ АГРАРНОЙ ПОЛИТИКИ

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Abstract. The availability of food, its accessibility and nutritional quality remains an important issue, in view of the expected increase in food demand and demographic growth. The paper includes the analysis of the essence and criteria of food security on self-sufficiency, physical and economic availability, stability of food maintenance, food consumption. A comparative analysis of food security in different countries was conducted. It was revealed that nutrition of the population of the republic is characterized by imbalanced diet, especially the most vulnerable and low-income groups. The possibility of creating agricultural innovation systems for addressing the issues of increasing food independence is shown. On the basis of foreign experience, appropriate measures of agricultural policy were proposed.

Аңдатпа. Азық-түлік қауіпсіздігімен, оның қолжетімділігімен және азық-түлік сапасымен қамтамасыз ету, азық-түлікке күтілетін сұраныстың өсуі мен халықтың өсуін ескере отырып маңызды сұрақ болып қала бермек. Жұмыста азық-түлік қауіпсіздігінің мәні мен критерийлері өзін-өзі қамтамасыз етумен, физикалық және экономикалық қолжетімділігімен, азық-түлікпен қамтамасыз етудің тұрақтылығымен, азық-түлікті тұтынумен талданады. Әр түрлі елдердегі азық-түлік қауіпсіздігін қамтамасыз етудің салыстырмалы талдамасы жүргізілген. Республика халқының тамақтануы рациондардың теңгерімсіздігімен сипатталатыны, әсіресе ең осал және аз қамтылған топтар үшін анықталған. Азық-түлік тәуелсіздігін арттыру мәселелерін шешу үшін аграрлық инновациялық жүйелерді құру мүмкіндігі көрсетілген. Шетелдік тәжірибе негізінде аграрлық саясаттың тиісті шаралары ұсынылған.

Аннотация. Обеспеченность продовольствием, его доступность и питательность остаются важной проблемой, с учетом ожидаемого повышения спроса на продовольствие и демографического роста. В работе проанализированы сущность и критерии продовольственная безопасности по самообеспеченности, физической и экономической доступности, стабильности продовольственного обеспечения, продовольственному потреблению. Проведен сравнительный анализ обеспечения продовольственной безопасности в различных странах. Выявлено, что для питания населения республики характерна несбалансированность рациона, особенно для наиболее уязвимых и малообеспеченных групп. Показана возможность создания аграрных инновационных систем для решения вопросов повышения продовольственной независимости. На основе зарубежного опыта предложены соответствующие меры аграрной политики.

Key words: food security, food products, economic, physical accessibility, energy value, calorie content, rational consumption norms, agro-food systems.

Кілттік сөздер: азық-түлік қауіпсіздігі, азық-түлік өнімдері, экономикалық, физикалық қолжетімділік, энергетикалық құндылығы, калориясы, ұтымды тұтыну нормалары, агроазық-түлік жүйесі.

Ключевые слова: продовольственная безопасность, продукты питания, экономическая, физическая доступность, энергетическая ценность, калорийность, рациональные нормы потребления, агропродовольственные системы.

Introduction. Ensuring food security is a world problem, various conferences at international levels and reports of international organizations are devoted to the results of its study. Life and health of billions of people depends on the availability and quality of food. Absence or lack of which, creates hunger, poverty, malnutrition. In a situation when basic needs of people are not satisfied, it can not be said that the country has reached a high level of human development.

In Kazakhstan, systematic work is carried out to study and ensure food security. Kazakhstan legislation defined food security in accordance with the definition of FAO as: "the state of economic security, including the agro-industrial complex, in which the state is able to provide physical and economic access to the population of high-quality and safe food products, sufficient to meet the physiological norms of consumption and demographic growth" [1]. The criteria for ensuring food security are: the physical availability of food products, the economic accessibility of food products and the guarantee of food security [2].

Monitoring of the state of food security was carried out considering the volume of food production, their commodity circulation and the availability of stocks; formation, availability and use of public resources of food products; formation of state grain resources; prices for socially important food products.

At the same time, changing the situation with food security, the millennium goals set, the need to ensure sustainable development changes approaches and criteria for food security. The aim of this work is to assess the state of food security, identify weaknesses that hamper its achievement, develop proposals for ensuring food security based on international recommendations.

Material and methods of research. Methods of researching the country's food security depend on existing approaches to understanding this problem.

Thus, in the Rome Declaration on World Food Security, food security is defined as "the state of the economy in which the population of the country as a whole and each citizen individually has guaranteed access to food, drinking water and other food products in quality, range and volumes of necessary and sufficient for the physical and social development of the individual, for ensuring the health and extended reproduction of the country's population. "

Certain countries rely on their own production of basic foodstuffs on the basis of their own production, subject to the physical and economic accessibility of food.

"...The country's food security is a state of the state's economy in which the country's food independence is ensured through its own production and the physical and economic availability of basic types of food and clean drinking water for the entire population in the quantity and quality required for the active and healthy life, and ensuring demographic growth ... ".

At the same time, economic accessibility of foodstuffs is considered as an opportunity to purchase food products at current prices in

volumes and assortments that are not less than the established rational norms of consumption provided by the corresponding level of incomes of the population. The physical availability of food implies the availability of food products throughout the country at every point in time and in the required range. Physical accessibility depends on both domestic production and the ability to import food.

The research center of the magazine "Economist", has developed a food security index, based on FAO data, which is calculated for 106 countries of the world. The index reflects three components of food security. For each component, an independent index is calculated as a composite of several parameters. Thus, physical accessibility of food is estimated by such parameters as sufficiency of domestic production, state investments in agrarian science, development of agrarian infrastructure, political stability, etc. Parameters for assessing the economic accessibility of food - the share of food expenditure in total household expenditure, the level of poverty, the availability of social assistance programs, etc. The quality and safety of nutrition are assessed by the following parameters: the level of proteins, trace elements in the diet, the variety of diet, the presence of a control system in the country food security and others.

At the present stage, these indicators are expanded or individual countries apply their calculation methods.

Results and their discussion. To assess the extent to which food security is achieved, the indicator is used - the proportion of agricultural and fishery products, raw materials and foodstuffs in the total volume of commodity resources of the domestic market, expressed in percents. In the medium term, threshold values of this criterion for UIS member states were recommended for: grain - not less than 95%; vegetable oil - not less than 80%; sugar - not less than 80%; meat and meat products (in terms of meat) - at least 85%; milk and dairy products (in terms of milk) - not less than 90%; fish products - not less than 80%. Now, the states of the EAEU, taking into account the mutual supplies, are providing the beef, at the level of about 80%; milk, poultry meat and pork - about 90%, potatoes and cabbage more than 92%. The lowest level of self-sufficiency (about 50%) is for fruit and berry products.

At the same time, for example, in Russia, the indicators of food independence are approved, which are treated as food security and are in the range of 80 to 95% for eight products.

The calculated indicators of Kazakhstan's food independence for certain food products according to the Russian authors [3] show that complete food independence and, accordingly, self-sufficiency in the country is achieved by cereals, peeled rice, and pitted rice.

The coefficient of food independence in the period 2014-2016 ranges from 0.80 and higher for goods such as vegetable oil, margarine and similar products, dairy products, bread, bakery and confectionery products, pasta, sugar. The indicator for meat rises from 0.77 in 2012 to 0.83 in 2016, that is, for those goods for which the country is one of the main producers. Low indicators for other food products are explained by the lack of climatic production opportunities and, accordingly, the lack of competitive advantages in their production. Analysis of consumption of vegetables and fruits is lower than rational approved norms. The physical availability of these goods is provided through imports, but high prices do not provide economic accessibility [4].

However, for such products as poultry and food by-products, ready-made and canned products from meat, meat offal or animal blood, sausages, cheese and cottage cheese, the country could achieve the necessary level of self-sufficiency and ensure export of products.

The food security index of countries for 2016: Russia 63.8, Belarus - 63.5, Kazakhstan -56.8.

FAO has developed a system of indicators that are based not only on self-sufficiency, they assume the existence of food products, food availability, food providing stability, food consumption.

Studies show that the problem of physical and economic accessibility of foodstuffs, the stability of food supply, which was previously carried out by the authors in recent years, is becoming less relevant for Kazakhstan. Access to food has improved through a reduction in poverty, but an increase in the price level has a negative impact. In 2017, average consumer prices for basic types of food products rose relative to the level of 2015.

The availability of products depends on their production. The average volume of food production has been steadily growing over the past fifteen years. In the period from 2000-2002 for 2011-2013 years. the volume of agricultural production per capita increased by 41%. At the same time, despite the growth in agricultural production, the volume of

agricultural production per capita (in US dollars) is very low, well below the world average ($ 331 per capita) and the average for developing countries ($ 272). In Kazakhstan, according to FAO, the adequacy of the average caloric intake (ADES) in 2014/16 was about 140% [5-7].

The main indicator of food security used by FAO, which explicitly takes into account economic access to food, is the prevalence of malnutrition, poor nutrition, and food consumption.

The results achieved over several decades show that both the prevalence of malnutrition and the number of people who do not receive adequate nutrition have declined globally. Prevalence of malnutrition at the global level has decreased from 18.7% in 1990-1992 to 11.3% in 2012-2014, and in developing countries from 23.4% to 13.5% (over the same period).

In Kazakhstan, the lowest indicator among the world's countries in terms of the number of undernourished people, is estimated at less than 5%, and this goal was achieved in 2006.

According to FAO, the caloric content indicator, or the total number of calories consumed by individual per day in the EAEU countries exceeds 2500 kcal/person/day, which is much higher than the recommended daily rate, which ranges from 1800 to 2200 kcal/person/day. Average caloric intake of food is quite close to the world average - 2902 (kcal/person/day). In Kazakhstan, the caloric content indicator of food amounted to 3142 kcal in 2016. This indicator is higher than the average in the world and in developing countries. However, the share of the population whose caloric intake is below the minimum allowable level is 2.7% [4].

Despite the fact that the average level of food supply in calories does not cause concern, countries suffer from malnutrition in the form of micro-nutrient deficiencies.

The problem of malnutrition, the recognition of nutritional deficiencies as a form of "hidden hunger" and the emergence of a world problem of overweight and obesity make the problem of malnutrition even more urgent and complex. Studies estimate the total loss of output due to non-communicable diseases, the main risk factor for which are overweight and obesity, at $ 47 trillion for the next two decades.

Kazakhstan is classified as BC – deficiency of micronutrients and obesity.

WHO recommends reducing total fat intake to less than 30% of total energy, while in the Republic of Kazakhstan, fat intake reaches 35% of the daily diet. Consumption of carbohydrates is 53%, and it is complex sugars, since we have a high intake of pure sugar, in our opinion, even rational consumption norms are overstated [4]. The main cause of obesity and overweight is excessive energy consumption compared to physical needs.

The growth gap (low growth for one's age) of children under the age of five is a widely used indicator of malnutrition, because it reflects the consequences of long-term chronic malnutrition and diseases. Iron deficiency anemia adversely affects the cognitive development of children, has negative consequences in terms of pregnancy outcome, maternal mortality and work capacity of adults. Iodine deficiency, overweight and obesity cause various diseases.

FAO notes Kyrgyzstan (17.7% in 2013) among the countries where the number of children under the age of 5 with a lag in growth is particularly high. The prevalence of overweight of children under 5 years in Armenia (16.8%, 2010), Kazakhstan (13.3%, 2010/11) [5,6]. In 2015, the prevalence of underweight among children under 5 years of age was moderately and severely 2.0%, strongly 0.3 %. The prevalence of stunting, moderate and severe, was 8%, 0% and 2.4%, respectively. Moderate to severe attrition was 3.1 % and a strong degree of 1.1%. The prevalence of overweight decreased from the above data in 2015 to 9.3%. Over five million Kazakhstanis suffer obesity [4].

In addition to the lag in growth, the number of children under the age of 5 with anemia is alarming, in particular in the following countries of the region: Armenia (34.4%), Kyrgyzstan (35.8%). There remains a high incidence of anemia among pregnant women in Armenia (27.6%), in Kyrgyzstan (29.9%). In Kazakhstan, based on the whole population the prevalence of anemia is 41.9%. This means that 6.5 million people in Kazakhstan suffer from anaemia [4].

As can be seen, the problem of malnutrition and overweight comes first. To determine the actions aimed at ensuring food security, it is necessary to understand the structural and underlying causes of food insecurity and malnutrition.

Despite the fact that Kazakhstan has taken measures to ensure food security and access to food recommended by international organizations, there are discrepancies in governance structures that ensure effective solutions and are the basis for access to food

and a higher standard of living. The analysis shows that the problem of malnutrition is characteristic of the most vulnerable and low-income groups in the population, which requires taking targeted measures. However, the economic crisis slowed the implementation of plans, programs and financing in the field of combating malnutrition and food insecurity. The fragmentation of small-scale projects, the inadequacy of public services in rural areas did not lead to meaningful results, but required significant administrative costs.

It should be noted that poverty of the population and inadequate access to food are often a consequence of unemployment and lack of decent work. The inadequacy of social protection systems, the unequal distribution of productive resources, including land and water, as well as credit and knowledge, the lack of purchasing power of low-paid employees, the urban and rural poor population, and low productivity of resources are the main causes of malnutrition.

The next cause of malnutrition is demographic changes, namely population growth, urbanization and migration of rural population to cities, employment in rural areas and lack of opportunities to diversify livelihoods, and the widening gap between deciles. There is a social and cultural alienation of people suffering from a lack of adequate nutrition. Paradoxical as it may seem, the low educational level and illiteracy of the population in terms of quality and full nutritional value go hand in hand with malnutrition, unhealthy diets and destructive behavior in a situation where there is no famine in the country, but there is a problem of obesity. Inappropriate and excessive food intake, which is often characterized by deficiencies in essential micro-nutrients, can cause serious health problems, including malnutrition and obesity, leading to the need to prevent and treat food-related diseases and food insecurity.

For our country, the problem is the inadequacy of support aimed at preserving the optimal practice of providing nutrition for infants and young children.

Ensuring food security largely depends on the development of the country's agro-industrial complex [8,9]. Its role is highlighted in the very definition of food security.

Experts note the lack of open, multilateral trading systems that create favorable conditions for agricultural development and rural development; insufficient investment in the agricultural sector and rural infrastructure, especially for small-scale food producers; lack of access to appropriate technologies, production resources and institutions; problems of livestock farming; inadequate infrastructure prevents reductions in post-harvest losses and access to markets; high levels of food waste; lack of comprehensive technical assistance to food producers. In Kazakhstan, in addition, it is noted that such factors as drought (lack of rainfall in non-irrigated regions, lack of water in the irrigated zone); high temperatures (the damaging effect of which is exacerbated by dry winds); low temperatures in the winter, especially in the northern regions, which makes it difficult to cultivate winter crops; salinity; soil degradation and others.

In the future, as experts say, a number of new problems in the field of food security and nutrition are to be solved. First, the increase in the population of the planet, already outstripping the pace of food production, which calls for the development of sustainable agricultural production and increased productivity. Secondly, changes in dietary preferences make it necessary to meet the needs for full, healthy nutrition of the growing population of urban and rural areas, while at the same time deteriorating food quality due to environmental disruption and the spread of genetically modified organisms. Thirdly, the ongoing global climate change calls for the adaptation of agriculture, its resistance to climate change, and the search for sustainable solutions to the problem of exacerbating competition for natural resources.

Agrarian innovation systems could help to improve food security and nutrition. The development of effective agricultural innovation systems, the strengthening of ties between farmers and other actors in the agricultural sector, will assist producers and agribusiness in addressing problems in improving market access, developing integrated production systems and further adapting the agricultural sector to climate change. Possibility and flexibility in attracting qualified management, scientific, production personnel, centralized management of resources and potential will allow to increase the efficiency of using production, investment and labor resources. The combination of production capabilities, technical expertise and research and development, the integration of science and production will allow for concerted financial, investment and credit policies, reduce organizational and production risks, diversify and specialize in production. However, in Kazakhstan there are difficulties in transforming the organizational

and production system, the complexity of their restructuring and re-profiling, work on the development and implementation of innovations in the agricultural sector is hampered by an undeveloped system of stimulating and supporting innovation, weak funding of the research base, inadequate skills of agricultural producers and farmers, staff deficit. Coordination of the activities of researchers, resource providers, consumers is complicated, low wages of workers of all participants in this system does not stimulate agricultural innovation.

The share of costs for agrarian and biological sciences in the volume of GDP in developing countries in comparison with highly developed countries is ten times or tenfold less. A grandiose world breakthrough in the production of major crops, called the Green Revolution, has become possible not only thanks to science and technology, but also the creation of effectively functioning services for the introduction, propagation and dissemination of knowledge. Kazakhstan is considered as the most important world region for ensuring the food security of the world population. According to official analytical data, by the year 2025, 3 billion tons of grain crops should be produced in the world to provide 8 billion people of the Earth. For example, to achieve this, the annual growth in the production of the most important food crop - wheat, should be 2% (against the current annual growth of 1.3%). And this should occur against the backdrop of the growing influence of unfavorable factors, such as: reduction of water availability, drought, rising temperatures, land degradation, the emergence of new very dangerous races of pathogens, increasing the use of crop products for biofuels and livestock [10]. And Kazakhstan, as a world producer of wheat, should be prepared to confront emerging problems.

Experts working on food security and nutrition note the need for effective financing and support for small farmers, as the main producers of agricultural products. Taking into account that 80% of livestock farming in Kazakhstan is produced by personal subsidiary plots, it is also necessary to improve the management of pastoralism, pasture and agricultural pasture farming. It is necessary to attract attention to gardening and vegetable growing, in particular, to the development of greenhouse technologies, to fish farming, since it is precisely this product that is undernourished in accordance with rational norms and a low level of self-sufficiency.

Conclusions. Forecasting the problem of the global crisis in the field of food security caused by the increase in food prices, recommendations have been developed for ensuring food security.

The most important measure is the development of legislation on intellectual property, access to genetic resources, technologies, seed systems and varietal testing. At the country level, it is necessary to create effective management systems that include all stakeholders.

The next step are responsible investments in agri-producing systems, agricultural innovations, changes in agricultural education and the creation of effective innovative systems for agricultural extension, networking between farmers, researchers and civil society organizations, as well as supporting the transfer of technology. Agricultural innovative systems to provide effective support should be directed to the use of innovative technologies available to rural commodity producers; cooperation, the creation of service points to ensure the mechanization of sowing, the introduction of mineral fertilizers, chemical processing, veterinary services. It is necessary to consolidate education and science on the basis of agrarian universities and create in them bases for dissemination and scientific and production demonstration plots to demonstrate affordable innovative technologies to farmers, measures to attract specialists to the countryside, expand international exchange of experience in disseminating knowledge and exchanging the best agricultural technologies.

Food security and quality nutrition, especially for the most vulnerable population, are promoted through measures to increase sustainable production of safe, nutritious, diverse and culturally acceptable foods, increase productivity and reduce food losses and food waste; to increase incomes and reduce poverty, including by engaging in agro-food systems and expanding the capacity to produce food for themselves and others; on the control of food security.

Reduction of large volumes of post-harvest losses and food wastes is recommended by investing in improving the rural infrastructure, namely, in the communication, transport, storage, energy efficiency and waste disposal systems at all levels of the value growth chain, reducing the volume of waste when consuming food.

These measures raise the need to increase the level of awareness and

knowledge of both consumers and producers, to inform the public about the quality, safety and nutritional characteristics of food products, health issues with a view to building the capacity of all elements of agri-food systems, in particular small-scale owners.

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