

Foreign Experience in the Development of the Food Industry and the Possibility of Its Use in Uzbekistan

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Abstract: *In this paper, an analysis was made of the development of the food industry in foreign countries in the context of the main industries: the production of meat and meat products, dairy products, sugar, cheese, tobacco products, etc. An analysis was also made of the activities of global corporations and clusters that produce food. Based on the analysis, proposals are made to improve food clusters.*

Keywords - food industry; food; processing industry; meat and dairy industry; cheese; tobacco industry; corporations; food cluster.

1. INTRODUCTION

The food industry is one of the largest in terms of the number of employees and the volume of products produced. Its significance lies in the fact that it satisfies one of the basic human needs - the need for food. Everyone needs them, regardless of region or race, therefore, one way or another, the industry is developed in all countries of the world. More food is produced where there are more inhabitants and a sufficiently developed economy for production, and the variety of products is greater where there is a high level of economic development.

The food industry is closely related to agriculture, which is the main source of raw materials. Its waste is used both in agriculture and in other industries (for example, in light, pharmaceutical). The efficiency of the food industry is ensured by the products of mechanical engineering, electric power industry, as well as science and education. Another feature of the industry is the need to package products in glass, tin, paper, and polymer containers. This led to a connection not only with mechanical engineering, but also with the glass, metallurgical, pulp and paper, and chemical industries.

Developed countries stand out with a wide variety of high-quality products. Dairy, meat, fish, canning and confectionery industries play a special role here.

Three groups of countries can be distinguished with different character of the development of the processing industry and specific trends in its location. The first group includes countries with developed economies, the second group includes countries of the "Third World" that are diverse and differ greatly in terms of their level of development, and the third group includes countries that have completed the transition to a market economy (1). The share of the food industry in the structure of the manufacturing industry of the world is about 9%, in developed countries - 7.6%, in developing countries - 11.8% (2).

The ratio between these three groups is currently changing dramatically. The countries of Southeast Asia and China have become the main engine of world industrialization, significantly changing the balance of power in the world economy (3).

2. RESULTS AND DISCUSSION

Consider the food production of the countries of the world in the context of the main industries.

The geography of meat production in the world has undergone significant changes in the second half of the XXth - early XXIst centuries. This is due, on the one hand, to an increase in the level of socio-economic development and a corresponding increase in consumption in developing countries and, on the other hand, the transition of developed countries to the consumption of dietary meat and a general reduction in the consumption of meat in the diet.

The meat industry is an industry of international specialization, primarily in economically developed countries of foreign Europe (France, Germany, Italy, Spain, the Netherlands, Denmark, Belgium and the Scandinavian countries), North America, Australia and New Zealand, as well as individual developing countries - China, Brazil, Argentina and Uruguay. The largest exporters of meat products to the world market are the countries of Western Europe (about 50% of world exports), Argentina, the USA, Brazil and Australia, and the largest importers are European countries and Japan (3).

Asia is the main region for meat production, followed by the states of America. The share of European states in the world structure is declining. In 2019, global meat production reached 336.6 million tons, up 44 percent or 103 million tons from 2000. According to the FAO, global meat production in 2020 decreased by 1.1% compared to 2019 and amounted to 333 million tons (Table 1). This decline was mainly driven by an 8.3% decline in global pork production. The main reason for the decline in pork production was the outbreak of African swine fever in China in 2019 (4).

Table 1: Dynamics of meat production in the world, million tons (5)

	2010	2012	2015	2016	2017	2018	2019	2020	2020 to 2019, %
World	29,4,4	30,7,1	31,9,7	32,8,9	33,5,2	34,3,1	33,6,6	33,3,0	98,9
China	80,9	85,0	88,0	86,6	86,9	88,3	77,4	75,1	97,0
EU-28	44,8	45,0	44,9	47,4	47,2	48,1	48,1	48,4	10,0,6
USA	42,0	42,6	42,8	44,6	45,8	46,8	48,1	47,5	98,8
Brazil	23,6	24,6	26,0	27,0	27,7	28,1	28,6	30,6	10,7,0
Russia	7,2	8,0	9,0	9,9	10,3	10,6	10,9	11,0	10,0,9
India	6,1	6,6	6,9	7,3	7,6	8,0	8,1	7,3	90,1

The global poultry meat market is developing quite dynamically. Over the past 10 years, global poultry meat production has grown by 37.8% from 99.3 million tons in 2010 to 136.8 million tons in 2020.

The largest producers of meat and meat products are still China, the EU, the USA, Brazil, Russia and India.

Market concentration for meat production is not as strong as for major crops and vegetable oils, although the top three producers accounted for 56 percent of world pork production and just over 40 percent of world chicken and cattle production. China and the United States of America are among the top three producers for each of the main types of meat: in particular, China alone accounts for about 40 percent of the world's pig meat, while the United States of America accounts for 17 to 18 percent of the world's chicken and cattle production.

The difference between the two countries is that China's meat production is mainly for the domestic market, while a significant portion of US meat production (especially chicken) is exported.

The pandemic that began in 2020 and various measures to combat COVID-19 have affected the formation of the world's food resources. The standards and rules of global trade are changing, food security principles are being reassessed, production, logistics and retail models are being transformed, new eating habits and food purchasing patterns are emerging. First of all, the impact of the pandemic fell on food-importing countries and developing countries dependent on the export of agricultural products and food.

In 2020, global processing capacity has been reduced due to social distancing measures. Interruptions in meat production

create supply problems, which in turn leads to higher prices for the final product.

The dairy industry has received the greatest development in the countries of foreign Europe, in the USA, Russia, Belarus, Ukraine, Australia and New Zealand. French and Finnish butter, sour cream from Finland and Estonia, cheeses from France, Germany, the Netherlands, Switzerland and Lithuania, yoghurts from France and Germany are widely known. The largest producers of animal oil are: India, USA, Germany. Other major oil producers are France, Pakistan, New Zealand, Russia, Poland, Australia and Ukraine. The main suppliers of dairy products to the world market are the countries of foreign (especially Northern and Central) Europe, Australia and New Zealand, and the main importers are the CIS countries and China (6).

World milk production increased by 52.4 percent to 883 million tons in 2019, up 304 million tons from 2000 (Table 2).

Asia was the largest milk producing region in 2019 with a 42% share of the total, ahead of Europe (26%), America (23%), Africa (5%) and Oceania (3%). In particular, milk production in Asia more than doubled between 2000 and 2019, from 170 million tons to 369 million tons, mainly due to growth in India (108 million tons), which is the largest producer with a 21 percent share of global production. In 2019. With an 11 percent share, the United States of America was the second largest producer; the remaining major producers (Pakistan, China, Brazil, Germany, the Russian Federation and France) accounted for 3 to 6 percent of world production.

Table 2: Dynamics of milk production in the world, million tons (5)

	2000	2005	2010	2015	2016	2017	2018	2019	2019 to 2000, %
World	57,9,6	65,0,1	72,3,6	80,2,5	81,4,0	85,4,7	87,9,7	88,3,3	15,2,4
India	79,9	95,8	12,2,1	15,5,7	16,5,3	17,6,3	18,8,0	18,7,6	23,4,8
USA	76,0	80,3	87,5	94,6	96,4	97,8	98,7	99,1	13,0,4
Pakistan	25,6	29,4	35,5	41,6	42,9	52,5	54,1	56,0	21,8,8
China	12,4	32,0	41,2	36,5	35,4	35,0	35,5	36,8	29,6,8
Brazil	20,6	25,6	31,0	34,9	33,9	34,6	35,2	36,2	17,5,7
Germany	28,4	28,5	29,6	32,7	32,7	36,6	33,1	33,1	11,6,5

The top five dairy producers in terms of processed raw materials include companies such as Nestle, Arla Foods,

Fonterra and Groupe Lactalis (Table 3). The ranking was topped by Dairy Farmers of America (7). In addition to those presented in Table. 3 companies in the IFCN rating are Glanbia Group (USA), California Dairies (USA), Danone (France), Agropur (Canada, USA), DMK (Germany, Holland), Müller (Germany, UK), Leprino (USA), Land O'Lakes (USA), Savencia (France) and Sodiaal (France).

In the total volume, the 20 largest producers of dairy products process 212 million tons of milk and occupy a share of 24%. 10 companies of the rating operate in the European market, 6 in North America, 6 in the Asia-Pacific. 50% is occupied by private companies and 50% by organizations owned by cooperatives. In total, the rating participants process up to 40% of the world marketable milk. In 2020, the rating participants increased the volume of processed milk by 1%, despite the unstable market situation and the impact of the coronavirus pandemic. In 2020, the top 20 companies paid \$77 billion to farmers, \$22 billion to enterprise workers, \$9 billion to company owners, and another \$3 billion in taxes (7).

Table 3: The largest dairy companies in the world (8)

Rank	Company name	Country of origin and main presence	Volume of processed milk, million tons	Estimated revenue per kg of milk, USD	Market share in % of world milk production
1	Dairy Farmers of America	USA	28,6	0,6	3,2
2	Groupe Lactalis	France	21,7	1,1	2,4
3	Fonterra	New Zealand	18,7	0,7	2,1
4	Arla Foods	Denmark, Sweden	13,7	0,9	1,5
5	Nestlé	Switzerland	13,6	1,1	1,5
6	FrieslandCampina	Holland	11,8	1,1	1,3
7	Saputo	Canada, USA	10,5	1,0	1,2
8	Amul	India	10,3	0,5	1,2
9	Yili	China	9,6	1,6	1,1
10	Mengniu	China	9,0	1,2	1,0

More than 170 million tons of raw sugar are produced annually in the world, with almost 80% being cane sugar and just over 20% being beet sugar. The world's largest sugar producers are Brazil (about 35 million tons per year) and India

(about 27 million tons). Russia is on the 9th place in this list. In developed countries, the production of cane and beet sugar is approximately equal, and in developing countries, about 90% of sugar is made from sugar cane (9).

The largest producers of raw sugar in the world are Brazil, India, China, USA, Australia, Thailand, France, Mexico, Germany, Pakistan and Cuba (9)

An important place in the structure of the food industry is given to butter and cheese production. Cheese production now exceeds butter production. Thus, the world production of cheeses is 42 million tons, butter - 6.1 million tons. Historically, the leading positions in the production of cheese belonged to European countries - France, Switzerland, etc. However, due to the growth in cheese consumption, the positions of North American countries have noticeably increased. The geography of the leading cheese producers is currently represented by the USA, Germany and France. Among the world's main producers of animal oil are India, the USA and New Zealand. The geography of vegetable oil production is quite wide and ubiquitous. However, the highest concentration is typical for Asia. World production is 178.3 million tons, of which Indonesia, Malaysia and the United States account for 46%.

If we characterize the processing industry in Europe, we can say that this is one of the oldest regions of the world with a high level of economic development, in which the processing industry is the basis in almost all countries.

The food industry in Germany is engaged in the processing of agricultural products and is represented by winemaking, brewing and other processed products.

In the countries of Western Europe and the United States, high results have been achieved in the agri-food sector of the economy due to the constant economic support by the government of farms (10).

The food and flavor industry has received great development in the United States. The share of the industry in the country's conditionally net manufacturing products is 12%. The most important processing industries in the United States include meat, dairy, alcoholic and non-alcoholic beverages, canning and flour milling. In connection with the rise in food prices in the United States, much attention is paid to the production of various kinds of substitutes for natural products (3).

The location of the processing industry throughout the country as a whole is relatively uniform. Large cities, as a rule, are also the leading centers of the industry. However, there are areas of concentration of milling enterprises in the Northwest Center and along the coast of the Great Lakes (leading centers: Minneapolis - St. Paul, Kansas City, Buffalo); meat industry - in Chicago, Kansas City and Omaha (Nebraska); dairy and cheese - in the states of Wisconsin and Minnesota; cannery in California. The largest centers for the production of confectionery are New York and Chicago; whiskey - Louisville (Kentucky); Coca-Cola - Atlanta (6).

The production of canned vegetables and fruit juices is concentrated in the West (California) and in the South

(Florida). Breweries using recipes from German brewers were established in Wisconsin, Missouri, and Colorado.

The tobacco industry is confined to specialized tobacco growing areas in Virginia and North Carolina. The production of cigarettes is mainly concentrated within Piedmont and Kentucky. The main centers are Greensboro - Winston-Salem-High Point and Durham in North Carolina, Richmond in Virginia and Louisville in Kentucky. The production of cigars from American tobacco is concentrated in the Northeast (the main center is Philadelphia) (3).

The Canadian food industry is of interest. In terms of total production value, the food and beverage industry is the second largest manufacturing industry in Canada, accounting for 17% of total manufacturing sales and 2% of national gross domestic product in 2019 (11). It was the largest manufacturing employer in 2019, employing 290,000 people. The production of meat products was the largest sub-sector of this industry, accounting for 25% of all production sales, followed by the production of dairy products (12.3%).

The Canadian food industry is a highly innovative industry. The vast majority of businesses in the industry (72%) introduced product, process, organization, or marketing innovation between FY 2016 and 2018, and almost half introduced process innovation (48%) (12).

The industry of developing China is undoubtedly one of the most developed - in terms of the total number of industrial enterprises and the number of workers employed in them, the country ranks first in the world. Heavy industry is the backbone of the country's economy. In China's food industry, most of the enterprises are located in the southwest of the country. This industry in the country is also very developed - China has been fully meeting its food needs since the 80s of the last century, despite the huge size of its domestic market. Today, the country is a major exporter of seafood and fish, as well as fruits and vegetables. The tea industry is historically developed - since the 19th century, China has not lost its status as one of the main suppliers of tea. The enterprises of the tea industry are located mainly historically, since the collected raw materials must be immediately processed, which is done at already built factories.

Japan is a country with a very highly developed industry. Despite its small territory, Japan produces up to 12% of the world's industrial goods. Food production in Japan operates mainly on imported raw materials, since there are no opportunities and resources in the country to produce its own. Japan is one of the world's largest food exporters. The country specializes in the production of sugar. Also in Japan, there is a demand for organic products and healthy eating (13).

South Korea is subject to Japanese economic influence. But despite this, the country still exports various food products. Actively processes sugar, production of alcoholic beverages has been established. In addition to Korean beer, various varieties of grape wines and other drinks made according to Western recipes are on the shelves. Crop production is highly developed in South Korea, as it is the basis of agriculture. The country also produces seafood. Most of the total catch is exported (3).

As a rule, almost all types of food industry are represented in developed countries, and in developing countries, the export industries of the food industry are still the most important, and the range of food products is much smaller.

In general, the location of the food industry in the world is characterized by a number of opposite trends. On the one hand, traditional, "classic" industries are still growing in less developed countries (to a certain extent, these countries repeat the development of the global food industry at an early stage).

On the other hand, in highly developed countries, their reduction is noted (this is especially true for industries that are harmful to health). Thus, the tobacco industry is moving from highly developed countries to less developed ones. The same process takes place in the sugar industry. In highly developed countries, wine production is declining and the growth of beer production has stopped, in developing countries the picture is reversed.

In highly developed countries, there is an increase in the production of various semi-finished products, something like the "industrialization of the kitchen", focused on the "liberation" of women from cooking. It is these industries that are leaders in the development of the food industry in highly developed countries. At the same time, in developing countries, the importance of the canning industry is growing, oriented to the market of highly developed countries, where numerous juices, canned fruits, less meat and fish products are supplied.

Flour-grinding, sugar, cereal industries are also developed in developing countries, indicating the predominance of food of plant origin.

In the future, the transfer of "obsolete", "harmful" and labor-intensive industries from developed countries to less developed countries will continue. This will contribute to the "spreading" of most industries in various regions of the world. An increase in the share of Asian countries, primarily East and Southeast, in the total volume of industrial production is expected. There are two trends in the sectoral structure of the industry that complement each other. On the one hand, industries will continue to "split up" into sub-sectors and production, on the other hand, their interconnection and interdependence will increase.

The analysis shows that most of the goods we purchase are produced by only ten of the most influential global corporations: the Swiss company Nestlé, the American companies Cargill, PepsiCo, Kraft Foods, Coca-Cola, Kellogg's, Mars, General Mills, the British company Unilever. Each of the food TNCs, as a rule, controls its own market niche, where it opposes not so much its competing corporations as local producers. It is worth noting that foreign companies successfully compete with domestic ones due to efficient technologies, access to long-term capital, a well-thought-out strategy, huge marketing budgets, extensive work experience, high-quality logistics and brand portfolio, competent management, expansion support from their states, and a considerable lobbying resource.

Forbes magazine has published a new version of the Global 2000 rating (14), which includes the largest companies in the

world. The ranking includes the world's giants in the food industry, beverages and tobacco.

The top three and, accordingly, the top hundred of the list include the Swiss corporation Nestlé (39th place), the American PepsiCo (70th place) - one of the world's largest producers of soft drinks and food products, as well as the British transnational company British American Tobacco, which produces cigarettes, tobacco and other nicotine products (81st). It is worth noting the American company Coca-Cola, which is the world's largest manufacturer and supplier of concentrates, syrups and soft drinks (102nd place) (Table 4) (15). Among food companies, European, American and Chinese enterprises are in the lead.

Table 4: The largest food companies in the world according to the Global 2000 rating in 2021 (16)

Ran k	Name	Country	Sal es	Reven ue	Asse ts	Mark et Value
39	Nestlé	Switzerl and	\$89. 9 B	\$13 B	\$140 .3 B	\$333. 2 B
70	PepsiCo	United States	\$71. 3 B	\$7.5 B	\$91. 2 B	\$199. 2 B
81	British American Tobacco	United States	\$33. 1 B	\$8.2 B	\$188 .2 B	\$91.6 B
102	Coca- Cola	United States	\$33 B	\$7.7 B	\$87. 3 B	\$231. 3 B
174	Philip Morris Internatio nal	United States	\$28. 7 B	\$8 B	\$44. 8 B	\$144. 8 B
176	Mondele z Internatio nal	United States	\$26. 6 B	\$3.6 B	\$67. 8 B	\$82.6 B
216	Altria Group	United States	\$20. 8 B	\$4.5 B	\$47. 4 B	\$96.9 B
238	Danone	France	\$26. 9 B	\$2.2 B	\$52. 3 B	\$46.4 B
247	Archer Daniels Midland	United States	\$64. 4 B	\$1.8 B	\$49. 7 B	\$33.2 B
264	Kweicho w Moutai	China	\$12. 2 B	\$6.8 B	\$32. 6 B	\$395. 8 B

The experience of developed countries confirms that at present, the effective development of food industry enterprises can be achieved through the development of clusters. The cluster-based economy is a model of a competitive and investment-attractive economy that provides a high level and quality of life for the population and involves not only large enterprises in the region, but also small businesses in the production process.

In such foreign countries as the USA, Canada, Finland, Belgium, France, Italy, the Netherlands, Germany, Bulgaria, Hungary and Austria, food production clusters have been formed that are successfully functioning and allow us to judge

not only the need to form clusters, but also the effectiveness their work, both on the part of the cluster members, and within the region and the country as a whole.

It should be noted that the most successful example of the US cluster strategy is the California wine cluster, which is an example of successful commercial activity of enterprises producing the same type of products. It includes a network of small wineries, many independent grape producers and industries and companies that support the grape business. This wine cluster is connected with other Californian clusters - agricultural, food, restaurant.

The Canadian economy is characterized by many successful high-tech cluster models, such as the wine cluster (Niagara); food industry cluster (Toronto). State support for the development of clusters in Canada is carried out at all levels of government - federal, regional and municipal. Support for clusters at the federal level is expressed in the fact that the Government of Canada implements a policy to attract investment, assists in the sale of company products in foreign markets, regulates the labor market and invests in promising research and development, creates educational programs, and protects intellectual property .

In the formation of the food cluster in Lower Austria (Austria), a significant role was played by the national innovation and research program, the key factors of which were the policy of stimulating the development of ties between research institutions and sectors of the economy (including agro-industrial), the reduction of regulatory barriers in innovation programs and the formation centers of competitiveness. The food cluster of Lower Austria includes the production of high quality and safe products; innovative methods of food processing, the use of the latest food technologies; and the production and marketing of regional and organic products. The purpose of the cluster is to promote existing national competencies in the field of food production, technology and marketing, as well as to create networks between industry participants. These activities will help companies remain economically viable in the long term and increase their international competitiveness.

In order to achieve its goals, the Lower Austria Food Cluster initiates and coordinates cooperation focused on food quality, food safety, and organic and regional products, both between companies and between companies and R&D facilities. The target groups of the cluster include food industry enterprises along the entire value chain: agricultural production, food processing, trade and industry, retail and wholesale of food, manufacturers of machinery and equipment for the food industry, cleaning products, pest control, packaging R&D, laboratories, consultants and much more (17).

Germany's strong economy is built on a network of "clusters" - groups of firms and research institutes with a common focus that use their regional proximity to support each other and innovate. foodRegio is a Northern German food industry network founded in 2006 and made up of member companies from the five northern states of Germany. The focus is on mid-sized companies and supporting organizations

in the food value chain. In 2010 foodRegio and Beltfood created a network of food clusters throughout the Baltic Sea region (18). The focus of the activity is on the exchange of innovative processes and products in the food industry. Together with three other German food chains, foodRegio has joined forces to form the German Food Cluster, further increasing its international visibility.

The food industry cluster Brandenburg (Germany) produces Spreewald gherkins, Eberswalder sausages, Belitzer asparagus, Werderaner ketchup, Prignitzer corn flakes, Werder fruits and vegetables. To further enhance this success in global competition, food industry cluster management works hand in hand with companies, universities, research institutes and associations.

Food Metro Cluster in the southeast of the Netherlands - development of innovative ways of producing protein products, including resource saving, vertical and horizontal integration, and rational organization of space.

In all European states, national cluster programs are financed mainly from the funds of national ministries, and regional programs - from regional budgets. The share of countries where cluster programs are financed by private business is insignificant. In all states, specially created organizations and private agencies are responsible for the implementation of cluster policy.

Foreign experience of using the cluster approach in relation to the management of the development of the territory is very diverse. Analyzing the practice of applying the cluster approach in developed and developing countries with market economies, we can conclude that there are no common generally accepted approaches and schemes for the creation and functioning of clusters. Each state develops its own approaches to the formation of clusters and their management, and in its own way organizes the activities of state bodies responsible for the implementation of the national industrial strategy for the competitiveness of the territory.

3. CONCLUSIONS

A survey study of the world experience of clustering the economy made it possible to draw general conclusions:

- the use of the cluster approach is a natural stage in the development of the economy, and its ubiquity can be considered as the main feature of all highly developed economies;

- the specifics of the cluster is the receipt by the organizations included in it of a synergistic effect, expressed in an increase in the competitiveness of the entire system in comparison with individual economic entities;

- a distinctive feature of the cluster is its innovative focus;
- the implementation of the cluster policy is based on the organization of interaction between public authorities and local governments, business and scientific and educational institutions to coordinate efforts to increase the innovativeness of production and the service sector, which contributes to mutual improvement and increase in efficiency in work.

Based on the analysis of foreign experience, it is proposed to create an innovative cluster of food industry enterprises in

the Tashkent region. When forming a cluster, on the one hand, an active role of the region itself and regional companies in the formation of a cluster is assumed, on the other hand, support for cluster initiatives from the state.

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