Strategic scenario of an open source of sustainable development for the food system

Abstract. Introduction. The food system requires some transformational changes which should take into account the problem of population growth, uneven distribution of consumer resources and threatening impact of the intensive agricultural development on the environment. The purpose is to study the characteristics of the developed strategic scenarios of the food system and identify the ways and directions in the rational combination of market relations with efficient resource consumption at the national level in the implementation of the scenario of open source of sustainable development for Ukraine and Greece. Results. The article deals with the present-day food system of Ukraine, its benchmarks and opportunities to solve social, economic and environmental problems and achieve sustainable development. The authors have studied possibilities and principles of agricultural producers, as well as coordination of efforts by the government and society in choosing an open source of sustainable development scenario of the national food system. Directions to promote international cooperation and implementation innovations in the agricultural sector through a combination of close market ties with the efficient and economical resource consumption have been established. Possible directions to intensify close links between the markets for certain agricultural products and prospects of import substitution have been analysed. Practical ways to shift the demand towards economical use of food resources through measures aimed at promoting healthy lifestyles, culture of healthy food consumption, reducing the availability of animal protein and foods high in salt, sugar and fat have been grounded. Potential ways to reduce urban migration through new opportunities of agricultural sector in contrast to global trends of rapid urbanisation and the experience of other countries as to the growing prestige of the farmer’s work through cooperation with international organisations and free access to capital have been analysed. Conclusions. It has been found out that certain strategic scenarios of global food systems can be recognised in the early stages and best used at the national level. The considered algorithms of actions must be adapted according to the existing conditions at the tactical level and provide economic, environmental and social efficiency.

Keywords: Food System; Strategic Scenario; Sustainable Development Scenario; Market Relations; Resource-efficient Consumption; Food Consumption; Ukraine; Greece

JEL Classification: L10; Q18; O13

DOI: https://doi.org/10.21003/ea.V165-12
Кониордос М. кандидат экономических наук, профессор, кафедра бизнес-администрирования, Национальный университет прикладных наук, Афины, Греция
Матвиенко-Беляева Г. Л. кандидат экономических наук, доцент, кафедра предпринимательской деятельности, Харьковский национальный экономический университет имени Семена Кузнеца, Харьков, Украина
Стрепчук С. И. кандидат экономических наук, старший преподаватель, кафедра менеджмента и администрирования, Национальный фармацевтический университет, Харьков, Украина

Стратегический сценарий «открытого источника устойчивого развития» продовольственной системы

Аннотация. В статье проанализировано современное состояние продовольственной системы и ее возможность обеспечивать здоровым питанием население планеты. Установлена необходимость поддержки государства и других заинтересованных сторон для внедрения нового видения развития сельского хозяйства, ориентированного на устойчивое развитие. Рассмотрены алгоритмы действий всех участников рынка при разных сценариях для возможного заинтересованных сторон для внедрения нового видения развития сельского хозяйства, ориентированного на устойчивое развитие. Рассмотрены алгоритмы действий всех участников рынка при разных сценариях для возможного

1. Introduction
The present-day food system requires some transformational changes which should take into account the problem of population growth, uneven distribution of consumer resources and threatening impact of the intensive agricultural development on the environment which causes an increase in greenhouse gas emissions, reduction of forest cover and lack of water resources.

According to the investigations of international organisations, the world’s population will have reached 8.5 billion by 2030; as of today nearly 800 million people are undernourished and, at the same time, 1.2 billion people are overweight or obese [1; 2]. Irrational distribution of food indicates the inefficiency and ineffectiveness of the food system regulation. Indeed, more than one-third of all food produced is lost, along with 88 countries where hundreds of millions of people suffer from hunger. Reducing food losses and waste will increase the supply of affordable food and strengthen global food security.

These factors must be provided by an effective complex of relationships between different processes implemented through the food system. As is known, the food system includes processes associated with cultivation, collection, processing, packaging, transportation, marketing, consumption and utilisation of food ingredients. Their rational integration should be aimed at high economic, environmental and social performance. The established communication channels between production, distribution, consumption and limits determining the growth of self-reliance and their subsequent expansion from local to national and global levels play an important role in the food system.

2. Brief Literature Review
The problem of organizational and economic nature and functioning of the food system has been considered in the works of the outstanding domestic scientists L. V. Deineko, M. P. Sychevskyi and E. I. Sheludko, who believe that there is a need in a scientific widespread use of the category «food system», which is widely used by European and American researchers in the study of the entire spectrum of problems associated with the cycle of production and consumption of food. Among prominent foreign researchers studying the issues of further development of the global food system according to a scenario approach are Sarita Nayyar (2017) and Lisa Dreier (2017) [1].

3. The purpose of the article is to study the characteristics of the developed strategic scenarios of food system and identify ways and directions of rational combination of market relations with efficient resource consumption at the national level in the implementation of the scenario of open source of sustainable development for Ukraine and Greece.

4. Results
The national food systems of Ukraine and Greece are under the influence of globalisation processes defined by trends of a global finance crisis which has caused falling demand for food, growth of urban population, climate change and the diet structure.
The data show that per capita consumption of virtually all types of basic products, except milk, has been reducing over the past 7 years in Ukraine.

The main reasons for this situation are, again, a decline in the purchasing power of the population and an increase in the share of raw materials import for food production, which affects the value of the latter. Food consumption diet per capita in Greece in 2010-2016 has also undergone changes; in particular, there has been a shift towards increasing consumption of meat and reducing consumption of fruits, vegetables and fish.

A characteristic feature of the food system in Greece is significant dependence of farmers on intermediaries, associated with insignificant volumes of farm products (this prevents direct links), disgracing agricultural teams (due to poor governance and debt), and consolidating the central role of intermediaries at the state level. In 2015, Greece was in the seventh year of the most acute and prolonged economic crisis in its modern history: the output fell by about 25% from its pre-crisis level, and unemployment increased from 7% in 2009 to 25% in 2015 [11].

Of course, under such conditions effective public policies should play an important role in stimulating business activity of small farmers, which, as a result, will increase the purchasing power of citizens and the public’s position in relation to labour in agriculture.

In Ukraine, as substantiates A. Popov (2017) in his empirical research, besides the significant influence of mediators on farms, the situation is further complicated by the alienation of land from peasants. They are transformed into rentiers [10], that is, they receive income from the lease of their own land, and the number of private labour owners is gradually decreasing.

A striking example is the experience of Brazil. Its food policy priorities of recent years have been social issues, intensive development of infrastructure in rural areas and improvement of the lives of rural population, not the growth of productivity or profitability. However, tangible positive results in the social sphere respectively affected the economic performance of the food sector [5].

Another example is the experience of India towards the support of the agricultural sector through introduction of the so-called green revolution mechanism, accompanied by increasing productivity, especially of cereals, which resulted in the introduction of new varieties, irrigation, advanced methods of agriculture and mechanisation. The network of lending institutions has expanded; the number of companies that carry out a number of special programs of rural development and supply electricity, fertilizers, various services to farmers has grown. Due to the reforms implemented in India towards the export-oriented development model the country has become a major exporter of rice, and is the world’s largest milk producer and exporter of beef (buffalo meat).

An equally important problem that requires changing trends in the food system is a global trend of urbanisation, which has also affected Ukraine.

Under the influence of urbanisation processes, in addition to massive outflow of labour into the cities, the requirements to storage and transportation of food are reviewed and get more complicated. A growing proportion of urban population with higher income prefers animal products in their diet and is willing to pay more for cooked food. This, in turn, leads to a shift in employment in the food system: fewer people work in agriculture and more in transport and wholesale trade.

The results of dangerous competition for natural resources are land degradation, deforestation and lack of fresh water in some regions. A clear example is the intensive development of bioenergy.

New understanding of agriculture (NVA), proposed by the partners of World Economic Forum in 2009, requires simultaneous food security, environmental sustainability and economic opportunities to meet the needs of agriculture. According to this approach improvement is provided in each direction to 20% in a decade to 2050, which requires the transformation of the agricultural sector and coordinated efforts of all stakeholders (government, private sector, farmers, international organisations and scientists). Key success factors in the transformation of the rural sector at the national level include setting the correct direction on the basis of effective models of leadership, strategy and investments.
Two basic factors have been selected to design scenarios of future global food system development in conditions of high uncertainty, based at UN reports, namely [3]:

2. Communication and logistics market. This uncertainty relates to the sustainability of trade flows and accessibility of goods that could be both the opportunity and the threat.

A combination of these two critical uncertainties forms a matrix that reflects four development scenarios for the future of the global food system (Figure 4).

Depending on the combination of shifts in demand and market linkages factors, the following scenarios are formed: survival of the richest, uncontrolled consumption, an open source of sustainability and locality as a new global idea that may have the following consequences [3]:

Application of the open source of sustainable development scenario on the example of Ukraine and Greece involves a combination of resource-saving consumption along with a strong market link (producer-consumer). The latter can be actively implemented through the use of the benefits of developing new information technologies: mobile applications that provide an individual approach to the formation of a diet of visual nutrition on the latest advances of nutrition.

Moreover, the promotion of a healthy consumption structure, which is mostly reduced to the consumption of animal protein and foods high in sugar, salt and fat, also has an ecological component. After all, the predominant share in the diet of animal proteins, especially ruminants is associated with higher environmental costs and leads to emissions of greenhouse gases: methane as a result of intestinal fermentation, carbon dioxide released from clearing forests for pasture and nitric oxide from feed production.

In turn, high quality requirements are imposed on food products when market relations are established. This will require manufacturers to improve technology, conduct regular monitoring and implement large-scale Good Agricultural Practices (GAP).

Accordingly, the crisis of conventional agriculture is the reason for the emergence and further rapid development of organic production. The modern domestic consumer market for organic products in Ukraine began to develop in early 2000s, amounting to: EUR 500 thousand in 2007, EUR 14.5 million in 2014 and EUR 17 million in 2015. According to statistics, only 10-15% of the Ukrainians can afford to buy domestic or imported organic products. The consumption of organic products in Ukraine per capita is only EUR 0.10 per year. Meanwhile, according to the Organic Federation of Ukraine, it is EUR 35.80 in the Netherlands, EUR 75.40 in Sweden, EUR 139.60 in Denmark and EUR 70.70 in Germany. In Ukraine, the domestic consumer market for organic products does not exceed EUR 12.2 million, while in France, for example, it is EUR 4.17 billion and in Germany it is EUR 7.04 billion [12].

It should be noted that Greece and Ukraine have a comparatively equal area of certified organic land plots with 407,069 ha in Greece and 410,550 ha in Ukraine. However, in 2015 there were 19,604 organic producers in Greece, whereas the number of organic producers in Ukraine was only 210 [13].

Resource-efficient consumption in the scenario may be presented as a bar of food losses and waste reduction of up to 5% of the total production. However, the mechanism of waste calculation itself is complicated, which in turn requires the establishment of a waste sorting system.

5. Conclusions

The analysis shows that the current food system does not provide for healthy nutrition to the world population, therefore a new vision of agriculture is based on the support of the government, strong cooperation between all stakeholders and focus on concrete actions and partnerships at both regional and national levels. It has been established that certain strategic scenarios of global food systems can be recognised in the early stages and best used at the national level. The considered algorithms of actions must be adapted according to the existing conditions at the tactical level and provide economic, environmental and social efficiency.

Reference

8. Deineko, L. V. (2015). Organizational and economic essence of the category «food system». Prodovolchi resursi (Food resources. Series: Economics), 4, 4-9 (in Ucr.).


59