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Випуск 41. Частина II

JEL Index: F 01; F 14

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SUBSTANTIATION OF IMPERATIVES OF THE GLOBAL FOOD PROBLEM SOLUTION

ОБҐРУНТУВАННЯ ІМПЕРАТИВІВ ВИРІШЕННЯ ГЛОБАЛЬНОЇ ПРОДОВОЛЬЧОЇ ПРОБЛЕМИ

The article substantiates imperatives of the global food problem solution as unconditional requirements for such fundamentals of the development of national and world agro-industrial complex, international trade and operation of the world food market able to provide the planet population with the sufficient quantity and respective quality of food products. A comprehensive research into various forms of the global food problem has determined the following imperatives of the global food problem solution: development of agricultural sector of national economies on innovation basis; poverty reduction and provision for accessibility of food products by maximizing the use of Official Development Assistance (ODA) resources; integration of agro-industrial complex manufacturers on the basis of establishment of national and international clusters that would produce certain food groups; diversification of quantitative and qualitative international trade components, food market stability and limitation of excessive food price volatility; improvement of living standards in rural areas by means of decentralisation of financial resources for the benefit of local communities; environmental friendliness of the global agri-food complex development, implementation of new technologies on the Green Economy paradigm basis.

Key words: globalisation, global food problem, food support, imperative, imperatives of the global food problem solution.

Relevance of the problem. Food problem issues hold a prominent place in national security concepts of every developed country. In the context of Ukraine's commitment to integrate into the European community, the food problem is of prominent significance. As the world practice shows, only those states that are able to provide the population with food products in any conditions can pursue an independent policy.

The food problem must be studied both in the global context and within the framework of an individual country, which is preconditioned by a variety of natural and climate conditions, social and economic as well as demographic situation. Lack of consistency and regularity in transforming the agro-industrial sector and the impact of a number of objective social and economic factors have intensified differentiation in the levels of the countries' development. This situation requires improved approaches to establishing the world food system with food security set as the primary goal in each country. Therefore, solution of the food problem in the globalisation context is a relevant task.

Analysis of latest research and publications. Food security issues have been noticed by the representatives of the national economic science relatively recently. Transformational crisis of the Ukrainian economy which has covered all areas and turned into a significant hindrance on the way to provision for sustainable development of economy and society has resulted in continuous attention to these issues. Therefore, the issue of establishing the national food security level, provision for development of the agro-industrial complex may be treated as one of the top national priorities requiring increased scientists' focus, systematisation and conceptualisation of this notion as a scientific category.

The fundamental works of O. Bilorus, O. Berezin, L. Berezina, V. Vlasov, M. Honcharenko, V. A. Zlenko, M. Lysak, D. Lukianenko, V. Sabluk, F. Braudel, T. Malthus, A. Sen, B. Hall et al. in this area [1-7] have developed the consequences of impact of various indicators that form food security of the country, although the substantiation of imperatives of the global food problem solutions still has not been studied in full.

Establishment of the purposes of the article. To determine the imperatives of the global food problem solution as unconditional requirements for development of the global food support system.

Presentation of the principal research data. Globalisation challenges which have manifested themselves as a number of global issues, including the global food problem, precondition the world community's need for determining the imperatives of solution thereof. A number of international forums and conferences devoted to the food problem and security have been held to search for their solution imperatives.

At the current stage the term "imperatives" is used in scientific research extensively [8, 9, 10, 11], but few authors define it. Imperatives are often associated with development factors and sources, for instance according to M. E. Buianova, S. I. Medvedev [8]. In some research works imperatives mean development priorities.

When substantiating the need for researching imperatives, N. Meshko believes that global economy imperatives are introduction of innovations, creativity, culture development and tolerance, environmental protection, human right to access to information etc. [11], yet she does not define the term. Therefore, examination of its essence is reasonable in order to clearly understand what contents of this definition are meant. The imperative is a common philosophical category applied in various knowledge areas.

Imperative (Latin *imperativus* — imperative, from Latin *impero* — *I order*):

• The imperative (in legal science) is bindingness. For instance, an imperative provision (a binding provision). An imperative method is a method of imperative guidelines (orders) based on subordination relations between entities (applied in criminal, administrative and other law) [12].

• The imperative (in philosophy) is an unconditional moral order; Kant's categorical imperative is a common universal moral law internally pertaining to each human [13].

• The imperative (in linguistics) is an imperative mood of a verb [14].

Having analysed the definitions above, we believe that the imperative in the economic area is an insistent (unconditional) requirement of certain economic behaviour preconditioned by economic, civilisation and moral laws of the human society. Since there is a need to address the global food problem, these requirements apply to both national governments and managers of international organisations, activities of companies, farmers and individual behaviour.

At the current stage foreign and national researchers define imperatives in various economic realms. Thus, when analysing regional development, R. Kempner, an American scientists, sets out the following regional development imperatives:

Imperative one – Focus on Building Talent, Not Attracting Companies.

Imperative two – Develop Local Talent before Attracting Outside Talent.

Imperative three – Protect and Improve Regional Quality of Life.

Imperative four – Cultivate a Dynamic, Tolerant Culture.

Imperative five – Get Connected: Partnerships and Networks are Required [15].

In the PhD thesis by T. Medvedkin, the following contemporary knowledge transfer imperatives are identified: labour specialisation, physical economy, market relations, innovation process DIC (duration, indefiniteness, collectivity), and a "black box" as a form for interaction of the abovementioned factors [10].

Therefore, economic imperatives are requirements to provide certain types of activities with account of the current condition of the economy or its individual sectors and needs of its development. The conducted analysis of the essence, content and indicators of the world food system allows to determine its solution imperatives. In the author's opinion, the imperatives of the food problem solution are unconditional requirements for such fundamentals of development of the national and world agro-industrial complex, international trade and operation of the world food market able to provide the planet population with sufficient quantity and adequate quality of food products. Since the food problem is preconditioned not only by imperfection of the production system and food resource distribution, but also issues of profit generation and distribution, the imperatives of the food problem solution must cover the production, distribution, exchange and consumption system on the national and global levels.

The comprehensive research of various forms of the global food problem enables determining the following imperatives of the food problem solution (Fig. 1).

In the production area: development of national agro-industrial complex systems, provision for their innovation operation, development of national and global agro-industrial complexes on a basis of sustainable development.

In the social area: poverty reduction in all countries of the world, especially the developing ones; improvement of living standards of rural population.

In the area of international economic relations: promotion of integration of food manufacturers, development of international trade in food and agricultural products, provision for stability of international food markets.

1. Development of the agricultural sector in national economies. The food problem of any country may be solved in the long term only by developing national food production and reducing country's food dependence on the external market.

In the context of growing market and environmental instability, balanced and efficient state support is necessary. The analysis has demonstrated that in all nations, whichhave achieved great success in dealing with the food issue, the state the leading play a principal role in establishing favourable conditions for agricultural production. At the current stage the country has to forecast the food market, develop food product balances, grant loans, benefits and preferences for necessary production and maintenance of competition on the food market.

Sustainable development of the agro-industrial complex requires efficient cooperation among large companies and small farms. Special focus must be made on engagement of state and private investment to support small production systems, increase agricultural labour efficiency and contribute to rural development.

Innovation development of the agro-industrial complex:

extension of scientific research into agriculture and promotion of their financing;
support of national research

programmes, state universities and scientific and research institutes;

• promotion of transfer of technologies, sharing of experience and practical best practices;

• transfer of technologies and scientific research outcomes to farmers;

• transfer of technologies, dissemination of knowledge and enhancement of the potential via North-South, South-South and Triangle cooperation.

Poverty reduction:

• fair labour remuneration and social protection of population;

• emergency food aid;

• labour remuneration to agricultural workers at the minimum living wage level;

• provision for adequate nutrition;

transfer of funds and other social protection methods;
provision for access to pro-

duction resources;political measures desig-

the right to sufficient nutrition shall turn into the principal purpose of the politics, programmes, strategies and laws in the food security area;
politics, programmes, strategies and laws must foster improvement of the status of right holders and liability of duty bearers, including the state and businessmen in the area of labour remuneration, employment and social protection

Development of the agricultural sector in national economies:

• provision for efficient cooperation among large companies and small farms;

• increase in stable and sustainable state and private investments in order to strengthen small production systems;

• increase in agricultural efficiency and development as well as sustainability;

• development of the small-scale agriculture.

Imperatives of the food problem solution unconditional requirements for such fundamentals of development of the national and world agroindustrial complex, international trade and operation of the world food market able to provide the planet population with sufficient quantity and adequate quality of food products

Integration of the agro-industrial complex manufacturers:

• development of sustainable production and supply chains by means of market tools;

• establishment of plurilateral food non-discriminatory partnerships for sustainable trade in raw materials;

• promotion of development and improvement of the potential and production integration of existing cooperative societies, manufacturers' organisation, organisations which unite parts of the value increment chain, with maximum focus on small food manufacturers and comprehensive participation of female farmers;

• establishment of national and international clusters for production of certain food groups

Environmentally-friendly development of the global food complex:

• provision for preservation of land, water resources, genetic plant and animal resources and biological diversity and ecosystems;

• increase in the level of immunity to climate change and natural forces;

• maintenance and improvement of forests which are valuable eco-systems that promote improvement of agricultural production;

• application of eco-system approach in agricultural management, when necessary.

Improvement of quality standards in rural areas: xtension of state invest-

extension of state investment and engagement of private investment into agricultural infrastructure and related services development plans drafted by the countries, including without limitation roads, warehouses, irrigation networks, communicational infrastructure, education, technical support and healthcare.

International trade, food market stability:

• adjustment and prevention of trade restrictions and faults in operation of world agricultural markets, including simultaneous liquidation of any forms of agricultural export funding and any export measures;

• adoption of measures to provide for proper operation of food raw material and derivative product markets;

• promotion of timely access to market information, including information on food reserves, in order to promote restriction of extreme food price volatility;

• maintenance of the agricultural marketing informational centre (AMIC)

Fig. 1. Structural Diagram of the Imperatives of the Global Food Problem Solution Source: developed by the author. 2. Innovation development of the agro-industrial complex. The research has demonstrated that the national economy's agricultural sector which is the exclusive base for food raw materials may increase its performance only if advanced technology is introduced. According to H. Timmer, creativity and innovations are key drivers of the globalisation process. It is the most important way to address crucial tasks and challenges that the world countries face today [16].

The need for scientific research into agriculture and promotion of its financing, exchange in experience and best practices via national research programmes, more extensive engagement of state universities and scientific research institutes into the process and transfer of technologies arises. Finding ways to scale up the transfer of technologies and outcomes of scientific studies to farmers, as well as ensuring that these studies meet the farmers' needs and address their issues by engaging them into the process are essential. It is necessary to promote transfer of technologies, dissemination of knowledge and building capacity via North-South, South-South and Triangle cooperation.

Innovation development of the agricultural sector in developing countries will not only promote extension of agricultural production, but will also increase competitiveness of national manufacturers on domestic markets, thus fostering increase in the country's revenues.

3. *Poverty reduction.* Poverty creates economic barriers on the way to adequate nutrition. Many studies have demonstrated that in most countries malnutrition does not result from deficiency of food products or low economic development of the country; but rather it is created by unfair distribution of profit and impoverishment of the majority of population. Consequently, poverty reduction is the most important imperative of the food problem solution. This is achieved by setting fair wages and providing social protection of the population. Immediate actions for the most vulnerable in the developing countries may include a range of measures such as emergency food assistance, payment of living wages to agricultural workers wages, nutrition interventions, cash transfers and other social protection instruments, access to inputs and food price policy interventions. The right to adequate food must be the main objective of food security policies, programmes, strategies and legislation. Human rights principles (participation, accountability, non-discrimination, transparency, human dignity, empowerment and rule of law) should guide activities designed to improve food security. Policies, programmes, strategies and legislation need to enhance the empowerment of rights-holders and the accountability of duty-bearers, including the state and businessmen, in the area of labour remuneration, employment and social protection.

4. Improvement of quality standards in rural area. Rural residents and employees in most countries are also agricultural producers. In most countries agricultural labour is associated with serious physical efforts, poorly automated and performed in harsh environmental and weather conditions and has no fixed working hours. The living conditions in rural regions are much worse than those in the city, and most of the rural population have no access to the most essential social services (education, healthcare, cultural services etc.) This leads to considerable and often uncontrolled rural-urban migration and deteriorates labour potential of the agricultural sector. That is why it is recommended to work to increase public investment and encourage private investment in state-developed plans for rural infrastructure and support services, including — but not limited to — roads, storage, irrigation, communication, energy, education, technical support and health.

5. *Integration of the agro-industrial complex manufacturers*, including international one. In the globalisation context any economic activities are getting more and more integrated. Therefore, sustainable production and supply chains using market tools must be developed; plurilateral food non-discriminatory partnerships for sustainable trade in raw materials must be established. As appropriate, support the development and strengthen the capacities of existing cooperatives, producer organizations, and value-chain organizations, with a particular focus on small-scale food producers and ensuring the full participation of women farmers.

An efficient direction is formation of national and international clusters for production of certain food groups.

6. *International trade, food market stability*. International trade in agricultural products and food is an important factor in many countries' food support. However, lack of balance and trade discrimination restricts opportunities of the developing countries as to use of international trade benefits for food problem solution.

Development of international trade requires adjustment and prevention of trade restrictions and faults in operation of world agricultural markets, including simultaneous elimination of any forms of agricultural export funding and any export measures of equivalent effect in accordance with the mandate of the Doha Development Round; adoption of measures to provide for proper operation of food raw material and derivative product markets as well as promotion of timely access to market information, including information on food reserves, in order to promote restriction of extreme food price volatility.

It is necessary to maintain the Agricultural Marketing Informational Centre (AMIC) in order to increase the level of awareness of the food product markets and improve their transparency, make a call to the international organisations involved into the system, public and private sectors in order to provide for extensive dissemination of up-to-date and high-quality information on food markets. 7. Environmentally-friendly development of the global agri-food complex. The research has demonstrated that a considerable part of land resources is lost and production performance goes down due to intensive and inefficient farming. Therefore, the topical task is to maintain more sustainable farming which enables increasing the food security level and eliminating famine and is economically viable by providing for maintenance of land, water resources, genetic plant and animal resources and biological diversity and ecosystems as well as increasing the level of immunity to climate change and natural forces. It is necessary to conserve and improve forests as valuable ecosystems that contribute to the improvement of agricultural production. Consider, as appropriate, an ecosystem approach in agricultural management in order to achieve sustainable agriculture, including for example, but not limited to, integrated pest management, organic agriculture, and other traditional and indigenous coping strategies that promote agro-ecosystem diversification.

Moreover, it shall be noted that the food problem solution requires changing conceptual approaches to solution thereof.

In 70s-90s of XX century international regulation of food support in the world and solution of famine and malnutrition problems in many world countries were performed on the basis of certain theoretical platforms. One of them was a *Basic Needs* concept designated for satisfaction of "basic needs" and "basic human needs". Its purpose was to relieve food tension in the developing countries, but therewith social and economic conditions between the developed countries and the developing countries did not change, and the developed countries retained control over main social and economic processes in third world countries. Therefore, the food problem was not solved, but its acuteness was reduced.

One more theoretical platform was a *minimum needs concept*. It provided for increase in the agricultural technological level and development of market reforms in the developing countries, engagement of foreign investment into the agro-industrial complex, provision of financial assistance by the developed countries. It fosters development of the agricultural sector and food production extension, increase in the employment level in rural areas. But developing countries quite often get technologically and financially dependent on the developed countries, and assistance is often subject to the economic policy and donor's interests. Although this concept promotes increase in the food support level in the developing countries, it makes countries economically and politically dependent.

At the current stage the *sustainable development concept* developed by the Club of Rome in 1992 is common. It is a "scientifically substantiated" theory of human survival which states that the most important determinant of sustainability is a ratio among the population size, scope of resources and environment's ability to recover. The notion of "bearing capacity" which is defined as a number of people who can be supported by a certain region has been introduced. The scientists have estimated that almost 75 % of the world population reside in the areas of the low bearing capacity. These are countries with the largest population number and density which pertain to the developing countries. Their poverty results in the food problem which often turns into famine. The food problem is solved in the context of changing impact of the social and economic system on the environment. As environmental impact equals the product of three elements, i.e. population, consumption and technology, the result shall be achieved via limitation of population and resource consumption and development of technology. Herewith each region of the plant (North, South and East) has its own tasks: focus of the developed North on reduction of environmental damage, the South's obligation to limit population growth, and the East's tasks to upgrade industries [17].

The ecologists have estimated the "bearing capacity" of the planet which must equal two billion people as opposed to current seven billion. It shows that the first version of the sustainable development concept differs from actual development of the human society. Within the framework of the old sustainable development concept the food problem can be solved by means of population reduction or substantial increase in its growth rates or limited consumption. These requirements cannot be fulfilled at the current stage. Moreover, life has shown that planet resources are able to provide for many more people. Innovation development of the economy, including the agro-industrial complex, creates new food resource production opportunities. It shall be noted that there are endless scientific approaches for innovative development of the economy which mostly relate to technological changes. However, technological changes cannot establish a new world food support system on their own. Therefore, a new innovation platform is needed to solve the food problem in the sustainable development context.

This platform might be a 4C concept which combines innovation and organisational approaches. Although it has been developed for corporations, it can be used at the international level to solve the food problem. The 4C concept 4C [18] includes the following elements:

- *Choices*: choice of a limited number of priorities in the food problem solution on a basis of evaluation of agro-industrial complex capabilities of the countries and international specialisation;

- *Competitive Advantage*: mobilisation of scientific and research resources, production capacities, activation of business initiatives in development of the agro-industrial sector and inventions;

- *Clusters and Connectivity*: development of world-class clusters in the area of food production able to provide for technological diversification, increase the volume, quality and variety of food products;

- *Collaborative Leadership* which provides for development of the state and private partnership in the agro-industrial complex to enable joint efforts for the problem solution [19, p. 318-319].

Each of these components may be applied to solve the food problem:

Choices for each country in the course of the food problem solution shall mean focus on the agroindustrial complex areas which have the best development opportunities on the sustainability basis;

Competitive Advantage is the need for increase in innovation of the chosen agro-industrial complex development areas as well as introduction of the environmentally-friendly food resource production;

Clusters and Connectivity are establishment of agro-industrial infrastructure clusters able to provide for production, processing and storage of food products and sale thereof to consumers to the best extent;

Collaborative Leadership is development of the state and private partnership in the food problem solution provided that environmental balance is maintained.

Conclusions. The research demonstrates that the global food problem in the current world economy context may be solved on a basis of integration of sustainable and innovation development.

The imperatives of the global food solution include development of the agricultural sector of national economies on the innovation basis; poverty reduction and provision for access to food products by increasing efficiency of use of the Official Development Assistance (ODA) resources; integration of the agro-industrial complex manufacturers on a basis of establishment of national and international clusters that produce certain food groups; diversification of quantitative and qualitative international trade components, sustainability of food markets and limitation of excessive food price volatility; improvement of rural living standards by means of financial resource decentralisation for the benefit of local communities; environmentally-friendly development of the global agri-food complex, introduction of new technologies on the Green Economy paradigm basis.

Taking into consideration the need for solving the global food problem, these requirements shall apply to both national governments and management of international organisations as well as activities of companies, farmers and individual behaviour.

Moreover, it shall be noted that the food problem solution requires changing conceptual approaches to solution thereof.

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ОБҐРУНТУВАННЯ ІМПЕРАТИВІВ ВИРІШЕННЯ ГЛОБАЛЬНОЇ ПРОДОВОЛЬЧОЇ ПРОБЛЕМИ

У статті визначено імперативи розв'язання глобальної продовольчої проблеми як безумовні вимоги розвитку глобальної системи продовольчого забезпечення. Слід зазначити, що вирішення продовольчої проблеми потребує зміни концептуальних підходів до її вирішення. Обґрунтовано, що в сучасних умовах розвитку світової економіки вирішення глобальної продовольчої проблеми можливе на засадах інтеграції сталого та інноваційного розвитку.

Ключові слова: глобалізація, глобальна продовольча проблема, продовольче забезпечення, імператив, імперативи вирішення продовольчої проблеми.

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