

# Regulation of International Economic-Legal Cooperation in the Field of Agricultural Production through the Prism of Information Technology Development

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## Summary

International economic and legal cooperation can ensure the transition of agriculture to the trajectory of sustainable development. The paper considers in detail the set of common goals and problems of an international nature, the solution of which is aimed at global legal regulation of cooperation between states. It is also noted about the impact of information technology on agricultural development.

The following methods of scientific cognition are used: a historical, systematic approach to research, method of analysis, and synthesis. Research results: a scientific idea of the importance of international cooperation in general and global collaboration in the field of agricultural production in particular. It is stated that states are obliged to cooperate, regardless of differences in their political, economic, and social systems, in various areas of international relations to maintain international peace, security and promote worldwide economic stability and progress, the common good of peoples. It is emphasized the need to build such relations in the agricultural sector, which take into account the interests of all states.

**Key words:** *information technologies, international cooperation, international organizations, agricultural production, food security.*

## 1. Introduction

To ensure international peace, common prosperity, the solution of global economic problems, and the realization of industrial progress, the states are in close international economic and legal cooperation. To provide food at the national and world level, to strengthen global food security in the face of rapid population growth (currently almost 8 billion people), it is most important to carry out international cooperation in agriculture, in particular in farming. Due to the relief, resources, climate, and other factors, agriculture is a highly specialized sector of the planet's economy. No less important is the integrated use of all scientific developments and technologies to increase the efficiency of agricultural resources and reduce the negative impact on the environment. Experts note that 78% of the earth's surface has grave natural defects for agricultural development, 13% of the area is low productivity, 6%

medium, and only 3% high. And in northern Eurasia and North America, in conditions of permafrost, the only possible branch of agriculture is reindeer herding. Thus, in addition to providing their populations with quality and safe food, several countries can make a significant contribution to solving the world's problem of hunger. Given the above, agricultural products are the subject of interstate economic relations. Exports and imports of agricultural products are on a large scale. This is confirmed by the presence of large quantities of grain, sunflower, tea, rice, bananas, figs in those countries where they are not grown. Also, the importance of cooperation lies in the fact that isolated development is much more expensive and long-lasting. The exchange of scientific, technical, and technological advances will help solve problems more quickly and make more rapid progress in agriculture.

Moderators of coordination in the field of international agricultural cooperation are international organizations: World Food Council, Food and Agriculture Organization of the United Nations, International Fund for Agricultural Development, International Seed Quality Control Association, Inter-African Bureau of Soils and Agricultural Economics, International Commission on Agricultural Products Bureau of Viticulture and Enology, International Tea Committee, Union for the Protection of Plant Variety Rights, etc.

## 2. Methodology

Research on the topic was conducted using the following methods of scientific knowledge: a historical, systematic approach to research, the method of analysis, and synthesis.

The historical method became a way of revealing a retrospective of agricultural development, namely the beginning, flourishing, and gradual passage of the Green Revolution. Using the historical method, it is investigated in which historical periods the main international organizations aimed at the development of agriculture and the historical conditions for the adoption of basic global

legal documents on the regulation of cooperation in agricultural production were found.

Using the system method, the object of study is considered as a set of interconnected elements that have a common goal. It is essential that the properties of the object as a whole system are determined not only and not so much by summing up the qualities of its components, but by the properties of its structure, special system-forming, integrative connections of the object. International cooperation is a set of norms, principles, and regulations, actions performed by the subjects of international cooperation to achieve a common goal. The work considers separately the activities of such major international organizations as the Food and Agriculture Organization of the United Nations (FAO); Committee on World Food Security (CFS); International Fund for Agricultural Development (IFAD), World Food Program (WFP), United Nations Standing Committee on Nutrition (UNFCCC), High-Level Task Force on the Global Food Crisis, FSN Forum Online Platform, Sustainable Food Laboratory Consortium, International Transmission, and Use Service agricultural technology. Each organization has its history of creation, high goal, and structure but all together, they are interconnected, cooperate, the only system whose vector is the regulation of international economic and legal cooperation in the field of agricultural production. Also, the systematic method was used in the study of a set of the most important international legal documents aimed at regulating activities in the field of production, consumption, use of agricultural products. It is shown that these contracts and agreements have separate functions, but at the same time, are closely interconnected, interact, and are elements of a single agreed system.

The method of analysis is the central tool for a detailed, in-depth study of the features and properties of the constituent elements of the object. The study of international cooperation in agriculture was carried out according to the following algorithm: division of the object of study into separate parts to study the characteristics and properties of each part (international organizations, international treaties), identifying links between parts, their similarities, and differences. In the future, it was logical to use the method of synthesis, i.e. the location of the analyzed parts alone, grouping by the similarity of features, or building a hierarchical system. Analysis and synthesis act as fruitful methods of cognition only when applied simultaneously. To analyze the activities of individual international organizations for cooperation in the field of agricultural production, it is necessary to record in mind that all international organizations together are a single whole, they have a common goal. Conversely, synthesis is possible only when the analysis and detection of signs of elements of a holistic system. Creation of food security, technology transfer, clustering are all elements of international cooperation in the field of agriculture, which are essential

to consider first as a single system, and then deeply explore each element to identify such links, parts that represent the main, central "core".

### 3. Recent Scientific Publications on the Topic

The study used scientific papers on the development of agriculture in the world and the need for international cooperation, regulations adopted at various levels to regulate this activity, and materials of periodicals. The sites of the database of international organizations were also used as information.

Shulga and Chaplya studied the impact of international institutions on agricultural production, including food security in the world. Scholars point out that at the global level there is an extensive system of international organizations that pay much attention to solving the problems of hunger and malnutrition of the peoples of the world by organizing a multilateral dialogue of states. Scientists have analyzed the activities of governmental international organizations and studied the activities of non-governmental international organizations in the field of agricultural production.

Moreover, Shugurov pointed out that the growth of efficiency of the agricultural sector depends on the efficiency of dissemination and further use of innovative technologies and studied in detail the international legal regime of technology transfer for sustainable agriculture. [2].

The status of international clusters is described in the works of such scientists as Bila, Zhalilo, Zhuk, Radchenko, Ustymenko, and the international cluster in the agricultural sphere was studied in detail by Polivoda. The scientist stressed that export-oriented interregional clusters play an important role in strengthening international cooperation in the agricultural sector of the economy. The ideas of clustering are spreading throughout Ukraine. Agro-food export-oriented clusters are a guarantee of agricultural development in Ukraine and a tool for raising the level of the economy. [18].

### 4. Paragraphs and Itemizations

International collaboration is relevant for many areas of social life. The principle of cooperation of states is enshrined in the Declaration of Principles of International Law of 1970 and stipulates that states are obliged to cooperate, regardless of differences in their political, economic, and social systems, in various areas of international relations to maintain international peace, security and promoting international economic stability and progress, the general welfare of peoples [1]. The

implementation of global economic and legal cooperation in the field of agricultural production demonstrates positive results in the transition of agriculture to the trajectory of rapid development and solving global problems. This type of cooperation is aimed at improving the efficiency of natural resources, improving food security, stabilizing the market of agricultural products and food, support and protecting agricultural producers, stimulating mutual trade, improving the living standards of the rural population.

Compliance with the norms and principles of international law is the basis for a coordinated solution to global problems, in the agricultural sector - to solve the food problem and the transition to sustainable agriculture and the use of environmentally friendly innovative technologies. Also, analyzing the documents of program-strategic nature, cooperation can be observed in taking urgent measures to combat climate change and its consequences, protection, restoration of terrestrial ecosystems and promotion of their rational use, rational forest management, combating desertification, stopping land degradation and biodiversity loss. This is largely determined by the diversity and versatility of technologies used in agriculture. Therefore, an important area of international cooperation in agriculture is the development of agricultural technologies and their transfer between states. International technology transfer is one of the forms of international scientific, technical, and innovative cooperation. Imports come from developed countries to less developed and developing ones. [2].

Large-scale changes due to the advent of agricultural technology were called the "green revolution." In the United States, Canada, Great Britain, and other economically developed countries, the "green revolution" took place before World War II. Mechanization of agricultural production, the introduction of advanced agricultural machinery have led to increased productivity of agricultural labor. Over time, the "green revolution" took place in developing countries, where primitive agriculture is developing in the way that Western countries have already gone. At this time, in the United States, Canada, and the United Kingdom began a new phase of the "green revolution" - the "biotech revolution" - the use of biotechnology, computer technology, new plant protection methods, including fertilizers and pesticides, new ways of analysis and tillage. However, in developing countries, due to financial insufficiency and high levels of corruption, the second stage of the "green revolution" is slow [3]. The statistical forecast indicates that if by 2050 the world's population increases by 30%, then to ensure food security, agricultural production must increase by 70%. [4].

The "Rome Declaration on World Food Security", adopted in 1996, stipulates that every country must ensure the right of everyone to access safe and wholesome food following the right to adequate nutrition and the right to freedom from

hunger. [5]. The main problems of food security are the global water crisis, land degradation, climate change, agricultural diseases, the use of agricultural resources for growing non-food crops (cotton, abacus, canola, and others), politics.

Food insecurity can exacerbate global conflicts and lead to humanitarian catastrophes. It is urgent to collectively create conditions, in which each person has physical, social, and economic access to safe, natural, quality food. International, national, sectoral, and intersectoral, public, industrial, economic, and other organizations, with the direct assistance of the heads of state and government of all countries, should implement, direct, coordinate, and control the solution of food security problems.

International organizations established under the auspices of the United Nations dealing with food issues are the Food and Agriculture Organization of the United Nations (FAO); Committee on World Food Security (CFS); The International Fund for Agricultural Development (IFAD), the World Food Program (WFP), the United Nations Standing Committee on Nutrition (UNFCCC), and Rural Development and Food Security. In addition, to control the level of food security, the UN has established a "High-Level Task Force on the Global Food Crisis", which has developed a system of measures to reduce hunger, poverty, infant mortality, created projects to change trade and tax policies to regulate investment in international food markets. [6].

The Food and Agriculture Organization of the United Nations (FAO) was founded in 1945, an international organization that accumulates all efforts to combat world hunger, deals with the problems of rural development and agricultural production. Today, the organization has 194 member states. FAO brings together countries with development solutions with other countries interested in applying them in similar contexts. FAO is a platform for dialogue, offering technical oversight, mobilizing resources, and raising the profile of proposals and initiatives. Many summits and meetings are held under the auspices of FAO. FAO aims to increase the number of participants and partners to mobilize technical and financial resources for faster and more effective implementation of the developed programs. It is worth noting the particular importance of FAO's activities at the local level in Africa, as locals often determine their civic position based on the interest of communities. This indicates the importance of influence not only at the state but also at the local level. [7]. In addition, the implementation and organization of negotiations at the local level are necessary (as, in the fight against the global food problem, the people have to resolve or prevent local conflicts so that they do not escalate into serious confrontation and lead to famine in a country, where NGOs, in many cases, have significant resources and impact on the

state of affairs in the country and are included in the management of the country). [8].

FAO also works with organizations and private companies that invest in the organization's technical projects. An investment center was established in 1964 to attract additional financial resources. His work opens up new opportunities and prospects for FAO member countries, as it facilitates borrowing from many reputable financial institutions. [9]. The investment center cooperates with the following large banks – Inter-American, Asian, African since 1977 with the International Fund for Agricultural Development and others.

As an experiment, the World Food Program (WFP) was established in 1961, to which FAO was tasked with providing food aid. Two years later, WFP gained permanent independent status and participated in the aftermath of the earthquake in Iran, providing humanitarian assistance. In 2020, WFP received the Nobel Peace Prize, which confirms the high international importance of this organization. WFP partners with UN agencies, other international organizations, and civil society groups in three main areas. First, it is the participation of various groups operating at the global, regional, and national levels in the work of the leading interagency coordinating bodies for humanitarian assistance and development. Secondly, it is cooperation with partners, members of UN organizations, and non-governmental organizations in operational and advocacy activities in the interests of increasing the overall contribution to achieving the goals in the field of food security. Third, protecting the interests of people and vulnerable groups (children, women, the sick, and the elderly) who suffer from hunger. At the same time, WFP's activities have been criticized, with Kenyan economist James Shikwati arguing in 2005 that aid to Africa does more harm than good because food aid increases corruption. Local politicians have the opportunity to steal some of the aid to bribe voters or sell aid on the black markets, killing local agriculture. Shikwati believes WFP supplies too much food in response to corrupt government officials, and thus reduces the production of local farmers, as no one can compete with the UN's global food program. [10].

In 1963, FAO, together with the World Health Organization (WHO), created the Codex Alimentarius intending to standardize, regulate, and standardizing food products in terms of their quality and safety for public health and implementing good trade practices. It is a collection of international standards, guidelines, norms and rules that promote food safety and quality, as well as encourage fair trade in food products. Consumers can be confident in the safety and quality of the food they buy, and importers can be sure that the food they order meets their specifications. Proponents of the code say it is only a voluntary reference standard, and there is no obligation for countries to apply it.

However, the World Trade Organization (WTO) considers the Codex Alimentarius an international standard in addressing food safety and consumer protection issues and is therefore binding. It should be emphasized that the link between safe food and human health is inseparable. For example, an outbreak of bovine spongiform encephalopathy in Britain has caused the rapid spread of Creutzfeldt-Jakob disease among consumers, leading to degenerative neurological disease. On the positive side, Code standards often become the basis for national legislation.

The interaction between FAO and WHO is also carried out in the field of training, which is designed to work in developing countries where nutrition standards are not met, which is the cause of many diseases. One of the most serious health problems associated with nutrition is obesity. Currently, the cheapest, most affordable, and delicious foods are often high in calories but do not contain enough nutrients. Today, obesity and related non-communicable diseases coexist with malnutrition in the same country. [11]. Thus, WHO is one of the most powerful and effective partners of FAO, as the issues of the two organizations are closely interrelated, which led to their active and close cooperation from the very beginning of their activities.

Against the background of the problem of food, shortages is the question of rational use of food products. In developing countries, people are malnourished, and in developed countries, according to statistics, about 30% of the world's food is lost or discarded each year. This situation causes depletion of the environment, namely land degradation, water pollution, and excess debris. Given the above, FAO's cooperation with the United Nations Environment Program (UNEP), under which a specific program is being implemented, is urgent. The purpose of the program is the rational use of food. [12].

In 1974, an intergovernmental body, the Committee on World Food Security (CFS) (the Committee), was established as a forum in the UN system for decision-making on global food security, including production, physical and economic access to food. In the early years, the Committee's efforts were still focused on increasing grain production and ensuring price stability. Later, the CFS underwent a restructuring that gave it a more representative character, and the Committee's activities were refocused on overcoming crises and solving structural problems. The main tasks of the committee are to coordinate a global approach to food security, promote policy convergence, support and advise States and regions, improve accountability, and share best practices. The Committee reports to the UN General Assembly through the United Nations Economic and Social Council (ECOSOC) and the FAO Conference. The Committee holds regular regional consultations, which provide an opportunity to receive materials, comments, and suggestions.

A special UN agency, the International Fund for Agricultural Development (IFAD), has been set up to mobilize financial resources to meet the goals of increasing food production and improving the food situation of the poor in developing countries. This organization emphasizes that low-income villagers should be able to manage their development. Villagers must have the right (and mechanisms to implement it) to develop and strengthen their organizations so that they can advance their interests and remove obstacles that prevent many of them from creating a better life for themselves. People in this category should influence decisions and policies that affect their lives, and they need to strengthen their market position. IFAD is designed to provide rural people with access to the following benefits:

- natural resources, especially safe access to land and water, and improved methods of managing and conserving natural resources;
- advanced agricultural technologies and efficient production services;
- a wide range of financial services;
- competitive markets for agricultural resources and products, and;
- opportunities for employment in rural areas outside of farms and business development.

IFAD provides direct financing in the form of loans and grants, attracts additional resources for the implementation of its projects and programs. Lending conditions vary depending on the size of the gross national product per capita in a particular country. IFAD works with many agencies, including:

- the World Bank;
- regional development banks, other regional credit and financial institutions;
- and United Nations agencies.

Many of them co-finance IFAD projects. IFAD is funded by voluntary donations from governments, exceptional contributions, loan proceeds, and investment income. [13].

International non-governmental organizations also operate in more flexible forms. In particular, the Global Forum on Food Security and Nutrition, the FSN Forum, is an online platform for multilateral dialogue that enables registered parties to engage in policy dialogue and exchange knowledge on food security at the global and regional levels. [14]. The essence of the Global Forum is a series of Global Conferences on agricultural research and monitoring the implementation of plans and strategies adopted at the

conference at all levels (from global, regional, and national to individual private enterprises). A distinctive feature of the Global Forum is online consultations. As an example of organizational structures for the dissemination of new methods of agriculture should be noted the consortium "Sustainable Food Laboratory". It is a non-governmental organization engaged in biotechnological developments aimed at improving the varieties of agricultural plants and animal breeds and their distribution around the world. Another important mechanism in the field of agricultural technology transfer is the International Service for the Transfer and Use of Agricultural Technology, which develops and disseminates the results of genetic engineering. But it should be noted that on the way to technology transfer, for example, from the sector of public research institutions to the private sector there are various barriers - financial, organizational, and barriers related to the protection of intellectual property rights. [15].

One of the segments of international legal cooperation is the transfer of biotechnology to preserve and inexhaustibly use biodiversity in the part that is relevant to agriculture. This means a close link between agriculture and the biodiversity conservation and use sector and, as a result, a close link with the international legal regime on access to genetic resources. An international achievement is the development and adoption of the International Treaty on Plant Genetic Resources for Food and Agriculture (the Treaty). The treaty entered into force in 2004 after being ratified by 40 states. Its goal is to ensure food security through the conservation, exchange, and sustainable use of the world's genetic resources for food production and agriculture, as well as the equitable and equitable distribution of the benefits arising from their use. The Treaty establishes multilateral access and benefit-sharing system designed to facilitate the exchange of genetic material and the distribution of benefits through the use of a standard material transfer agreement. The agreements are in line with the Convention on Biological Diversity. No country can fully provide itself with plant genetic resources, so international cooperation and the exchange of genetic resources are crucial to food security. Through this Treaty, the countries have agreed to establish a multilateral system to facilitate access to the basic genetic resources of plants for food and agriculture and the equitable and equitable distribution of the benefits derived from such access. The Treaty recognizes the enormous contribution that farmers and their communities have made and continue to make to the conservation and development of plant genetic resources. This is the basis of farmers' rights, which include the protection of traditional knowledge and the right to equal participation in the distribution of benefits and decision-making at the national level concerning plant genetic resources. Under the Treaty, the responsibility for exercising these rights rests with governments. [2].

In general, under the auspices of FAO and UNEP, several basic multilateral agreements have been developed that have an impact on agricultural activities:

- Code of Conduct for Responsible Fisheries;
- International Code of Conduct on Pesticides.

Scientific and technological progress has led to the large-scale development of fisheries and fishing fleets. And the realization of the depletion of fish resources came in the late 1980s when many fish populations were lost, and new approaches to fisheries management became urgent, taking into account the need to preserve biodiversity and protect the ecosystem. In addition, unregulated fishing on the high seas, often with the production of transboundary and highly migratory fish species, has been a growing concern. And in 1995, FAO members unanimously adopted the Code of Conduct for Responsible Fisheries (Code). The document establishes globally agreed principles and norms for the use of resources for fisheries and aquaculture, which are implemented, in particular, through regional mechanisms and cooperation. This document (on the sustainable use of aquatic bioresources) aims to promote a responsible approach to fisheries and aquaculture. It serves as a guide for national legislation and national policies for the rational use of fish bioresources, achieving an optimal balance between the production of fish resources and fish reproduction measures. The Code regulates the rights and responsibilities of all those involved in fishing, breeding, processing, trade, and consumption of seafood and recognizes the nutritional, economic, social, environmental, and cultural importance of fisheries. The Code is a guide in the development of technical and financial measures for the conservation and exploitation of aquatic bioresources, research in the field of fisheries, and in the field of seafood trade. The Code applies to FAO members, as well as to fisheries enterprises, subregional, regional and global organizations (both governmental and non-governmental), as well as to all those involved in the regulation, exploitation and development of fisheries and aquaculture resources, in particular fishermen, enterprises for processing and marketing of fish and fish products and other users of aquatic bioresources. The norms of the code are voluntary, but some of them are norms of international law of direct action. [16].

The International Code of Conduct for Pesticides is a collection of voluntary standards for the conduct of public and private organizations involved in pesticide trafficking or related activities, especially in the absence of national legislation on pesticide regulation. The Code regulates the rational use of pesticides to preserve the health of humans, animals, and the environment, to prevent accidental poisoning by pesticides during operations with them, their storage, transportation, disposal. Entities covered by the

Code: governments, international organizations, the pesticide industry, pesticide application equipment manufacturers, pesticide dealers, pest control specialists (SBIs), the food industry and other industries that use pesticides or dealing with pesticide-related issues, pesticide users, and public sector organizations such as environmental groups, consumer groups, and trade unions. [17].

A great area of international cooperation in agricultural production is the creation of clusters. International cooperation is a universal form of organization of joint, mutually beneficial production of agricultural products with the participation of foreign partners of two or more countries. Characteristic features of this type of cooperation are mutually agreed on work, mutual risks, joint protection of investments and industrial secrets, strong and long-term relations, which are enshrined in contracts and agreements. The creation of interregional and international clusters is supported by the European Union project "Support to Sustainable Regional Development". [18].

In addition, recent years have been marked by the introduction of information technology in agriculture, which has led to the adjustment of crop processing methods and field management. Technology makes it possible to radically change the concept of agriculture, making it more profitable, efficient, safe, and simple. Thus, the use of GIS technology in agriculture and GPS agriculture, satellite images, drones, and other aerial photographs.

As a result, farms benefit significantly from the ever-evolving agricultural information technology. These include reducing the consumption of water, nutrients, and fertilizers, reducing the negative impact on the surrounding ecosystem, reducing chemical runoff into local groundwater and rivers, increasing efficiency, resulting in lower prices, and others. Thus, agriculture becomes more cost-effective, smart, and sustainable.

## 5. Paragraphs and Itemizations

1. To ensure international peace, common prosperity, the solution of global economic problems, and the realization of economic progress, the states are in close international economic and legal cooperation.
2. The significance of cooperation lies in the fact that isolated development is much more expensive and long-lasting. The exchange of scientific, technical, and technological advances will help solve problems more quickly and make more rapid progress in agriculture.
3. Due to the relief, resources, climatic and other factors, agriculture is a specific sector of the economy. In addition to providing their population with quality and safe food,

several countries can make a significant contribution to solving the world's problem of hunger.

4. The statistical forecast indicates that if by 2050 the world's population increases by 30%, then to ensure food security, agricultural production must increase by 70%. Food insecurity can exacerbate global conflicts and lead to humanitarian catastrophes. Thus, it is urgent to create benefits, privileges, advantages, preferences, and most-favored-nation treatment for developing countries, given the need to ensure global food security.

5. International organizations create a single vector of activities for a large number of actors to achieve the public good through agricultural production (overcoming the food crisis, combating hunger, exercising the right to healthy food, clean environment, rational use of biological resources). But, along with the global success of international organizations, there are problems, criticism, and opportunity for further development.

6. Adoption of international codes, the conclusion of multilateral agreements create mechanisms for the implementation of imports and exports of agricultural products, financial assistance (loans, grants), technology transfer to improve the pace and quality of agricultural production, equal use of global plant genetic resources, balanced benefits and observance of intellectual property rights at the same time, safe use of pesticides, fishing, taking into account the exhaustion of biological resources.

7. The creation of international clusters is essential for mutually coordinated work, joint protection of investments and industrial secrets, mutual risks, strong and long-term relations in the field of agricultural production.

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