

«The transition to organic agriculture will become not only the optimal solution to environmental problems in the country, but also one of the stimulating factors for further economic development,» mentions researcher Maral Sagynaliyeva in her article, written specifically for CABAR.asia.

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The development of organic agriculture can not only contribute to the economic growth of a country, but also resolve environmental issues related to agriculture.

To date, discussion of further measures to solve **environmental problems** at various summits of heads of state in the past ten years has been one of the main items on the agenda. For example, in December 2019, the UN held its next annual conference on climate change and presented reports, the results of which show that the condition of the

environment is certainly deteriorating at a rapid pace. And most important, many states still mistakenly perceive climate warming as an expected threat, taking fragmented preventive measures to address this problem. It is generally accepted that environmental degradation is a direct consequence of economic activity. However, in many European countries, government and business structures, in close cooperation with the scientific community, assert the opposite and demonstrate in practice, that the environmental problem is solvable, which is subject to the introduction of corrected management methods and new technologies, especially in the agricultural sector. Namely, such an approach in which simultaneously **two**, at first glance, conflicting **issues, that is, protecting the natural environment and stimulating economic growth**, in European countries is called **environmental modernization**. What is “*ecological modernization*” and why it has acquired a political character in developed economies, as well as how it can be integrated into the political and economic component of the socio-economic development of the Kyrgyz Republic at this stage? These questions will be analyzed in detail in the following paragraphs.

Environmental Modernization: A Historical Background

Since the 1960s, turbulent social processes have been taking place in developed countries, especially in Western Europe, the United States and Japan, which were initially caused by the coverage of research results on the anthropogenic impact on the environment, and especially the consequences of economic activity on the ecology. For example, the outstanding report “The Limits to Growth”[\[1\]](#) was carried out by 17 scientists in 1972 at the request of the Club of Rome, an international non-governmental organization engaged in the analysis and forecasting of world processes. This work, by using a computer program, modeled the assumed scenarios of human development in the case of approaching the limits of demographic and economic growth, in which natural resources are depleted in reverse order. Another scientific work “Silent Spring”[\[2\]](#) written in 1962 by marine biologist R. Carlson, also gave a huge impetus to the formation of a large-scale environmental movement in the United States. Namely, this book for the first time described how destructive for birds, in the first place, is the use of pesticides, and DDT in particular, in agriculture. Next in turn, but not the last, scientific and analytical work that attracted the interest of the international community was the report of the Brundtland Commission[\[3\]](#) to the UN in 1983, which for the first time speaks of sustainable development and recommends countries to pay great attention to the need to ensure environmental safety both at the national level and internationally.

All of the above-mentioned and other environmental reports and studies have formed a public interactive stratum concentrating the main focus on solving environmental problems

but structured by different interest groups. And these interests, or in other words, high concern, came from population groups that had experienced or were at that time negatively affected by environmental degradation. For example, there has been a sharp spike in health deterioration from water, air and soil pollution due to acid rain,[4] which fell mainly in the Scandinavian countries in the 1970s. At the same time, there was an increase in the emergence of new human diseases associated with the use of low-quality and chemical-rich plant and animal products.[5] All these and other problems that arose due to environmental degradation began to form a public platform that actively criticized state political and economic approaches and actions aimed at resolving environmental issues.

Moreover, in scientific circles of Western Europe in the early 1980s, a new theoretical direction, ecological modernization,[6] was put forward, which, on the basis of theoretical analysis, could simultaneously resolve two issues - **environmental protection and economic growth**. In this regard, due to the active participation of the public and the involvement of the scientific community in solving environmental problems, state institutions, together with the business sector and the scientific community, have developed a new policy direction for environmental protection and economic development, which will subsequently be called environmental modernization.

Organic agriculture in the Kyrgyz Republic

Economic and environmental aspects of development

It should be noted that one of the striking examples of environmental modernization can be called organic agriculture, because the very concept of organic agriculture, first of all, focuses on protecting the environment and caring for human health. **Organic agriculture** implies a systematic approach to agriculture and management of agricultural production, which provides for mandatory use of only organic fertilizers, herbal medicines to combat pests and diseases of agriculture, and other methods adopted in accordance with the principles of organic agriculture.

The economic aspect. In the Kyrgyz Republic, the first organic agricultural production was the production of organic cotton, which has been implemented since 2003 within the framework of international cooperation with donor countries. For 2018, according to the Research Institute of Organic Agriculture (FiBL),[7] in total, 22,117.60 ha of organic irrigated land are used in the country, which is 0.21% of the total irrigated arable land in the country. Organic irrigated land is primarily land that does not use chemical fertilizers, synthetic additives to stimulate plant growth, and medicinal chemicals to kill pests. However, the number of farmers employed in the organic agriculture sector is only

1,107 farmers. Although, according to the National Statistical Committee of the Kyrgyz Republic, as of 2018, 439,602 active farms were involved in the country.[\[8\]](#)

The largest area of organic land is devoted to the production of organic cotton, which is 11,155 ha, according to FiBL data[\[9\]](#) for 2017 (Table 1). The next crop in terms of area is leguminous plants, the main share of which is grown mainly in the Talas region and occupy 624 hectares of irrigated land. As shown in the table below, wheat is the third and the shelled walnut is the fourth on the list of crops grown on 236.4 hectares and 175 hectares of organic land, respectively.

It should be noted that recently a lot of attention and efforts have been devoted to the organic cultivation of rice, vegetables and fruits, as well as other crops in the country within the framework of the implementation of international projects and agreements. This course of development, namely the development of organic production of vegetables and fruits, has many prospects for further expanding its share in world markets, and also, subject to a constructive foreign economic policy of the state, it is possible to build stable production channels to restrain individual positions in the markets. For example, according to studies of world markets for organic products,[\[10\]](#) [\[11\]](#) it was revealed that the volume of demand for organic vegetables and fruits in any form, fresh or dried, is growing every year and significantly exceeds the supply.

Based on the aforementioned data, the constructive development of organic farming can not only contribute to the **economic growth of a country**, but also resolve **environmental issues** related to agriculture. However, it must be borne in mind that the first and main goal of any entrepreneur, including a farmer, is to improve their own well-being, that is, to improve the quality of life by generating and increasing material capital, money in the first place. In addition, organic farming takes time, money and labor to move from intensive farming to organic farming practices. Moreover, the process of passing and receiving certification of an international level, which gives access to world markets, costs a lot of money, which, unfortunately, farmers, the main producers, do not have in stock and in sufficient quantities.

Moreover, the household received a monthly income for 2018 in the amount of 5,337.3 KGS (77 USD), while the average cost of living in the Kyrgyz Republic per capita for the same year averaged 4,792.54 KGS (69 USD). Based on these data, the question immediately

arises: how can a farmer improve the quality of his own life, and other family members', by 544.76 KGS (8 USD) per month? Moreover, it should be borne in mind that 40% of the total population of the country is employed in the agricultural sector, and 60% of the total population lives in rural areas.

This problem not only affects farmers in developing and transition economies, but it is also acute for farmers in developed countries. And the reason is that the agricultural sector, regardless of the level of economic development of the country, is the most vulnerable sector and depends on the degree of restoration of natural resources. However, at the same time, agriculture is undoubtedly the most important component in ensuring the country's food security.

All this suggests that the role and functions of the state in the development of sustainable agriculture, moreover organic, should be significantly active, especially in the provision of environmental subsidies and grants, as well as in the creation of a favorable competitive environment, including the development of human capital as in urban and rural areas.

For example, it is in the European Union that a number of ministries such as the Ministry of Economic Development, the Ministry of Environmental Affairs, the Department of Science and Education and other government institutions have been actively involved in the development and implementation of programs for the development of organic agriculture. Within the framework of the Common Agrarian Policy (CAP) of the EU, educational programs on the management of organic agriculture were launched, as well as grants for research and development in this direction were provided. The EU's CAP also provided for the allocation of subsidies to farmers wishing to engage in organic production and promoted the implementation of joint agricultural projects with the business sector, which was one of the main principles of environmental modernization.

Environmental aspect. In 2019, a group of scientists conducted a study on the effectiveness of the environmental policy of Kyrgyzstan using the data envelope analysis method, which is one of the methods of comparative analysis of the activities of different systems.^[12] The data used for the analysis in the study was taken from open sources, that is, from official government websites. The results of the study showed that the measures and actions of government bodies, carried out in order to achieve eco-efficiency, or reduce the negative impact on the environment, within the framework of environmental policy, had relatively positive effects on the general state of the environment, and there was also a relatively positive ratio of economic growth and improvement of the ecological state in the country. However, an in-depth analysis of data by regions, sectors of the economy and environmental clusters revealed problems with achieving eco-efficiency. For example, the

goals and functions of local and central government bodies were opposite to each other, that is, they were disintegrating in nature, the same was observed between the economic and environmental departments of the state.

Consequently, in the state structures of the Kyrgyz Republic, there are many gaps between the governing bodies, which leads to further inaction of the work of the state mechanism as a whole. In this connection, ecological modernization by its principle and nature, as a political mechanism, considers **economic development and environmental protection** as a single mutually beneficial and interdependent system of relations between the state, society and the business sector as a whole.

Moreover, the Program for the Development of the Green Economy in the Kyrgyz Republic for 2019-2023[13] of the Ministry of Economy of the Kyrgyz Republic describes the comprehensively destructive impact of the irrational use of agricultural land on the general condition of the natural environment in the country. Additionally, FAO in its report[14] from 2018 notes that at the moment, emissions from agriculture, namely greenhouse gases, can certainly be considered low, but in the near future it is predicted from an economic point of view that there is a high probability of a sharp increase in greenhouse gas emissions from this sector, subject to the use of synthetic fertilizers.

In this connection, the transition to organic agriculture will not only be an optimal solution to environmental problems in the country, but also one of the stimulating factors for further economic development, especially the development of the regional and rural economy of the country.

Conclusion and recommendations

Summarizing the above, it can be assumed that for the Kyrgyz Republic, environmental modernization, as a new political course for the country's development, will become the optimal solution to two issues simultaneously - **economic development and environmental protection**, only if environmental and economic approaches should be mutually beneficial and balanced in the process of forming and adopting political solutions. At this time, especially after the adoption of the Law of the Kyrgyz Republic of May 18, 2019 "On organic agricultural production in the Kyrgyz Republic", the further development of organic agriculture can become one of the most effective projects for the environmental modernization of the country. In this regard, the following steps must be taken:

1. Revision and integration of goals and functions of economic and environmental

departments under the Ministry of Economy and the Ministry of Agriculture, Food Industry and Land Reclamation for the mutually beneficial achievement of common goals - to form a common group of representatives of departments to analyze and monitor problems encountered, as well as to develop mutually beneficial long-term and short-term scenarios;

2. Active participation of representatives of the business sector in solving both economic and environmental problems. Involving the business sector in the development and implementation of organic agriculture projects will give a great impetus to the introduction of innovative technological and technical approaches to solve both economic and environmental problems;
3. Financial and technical assistance for the development and implementation of research programs and projects aimed at the development of organic agriculture;
4. Active participation of civil society in promoting production and access to organic products, which will directly affect the improvement of the health of the population, as well as the state of the environment in general;
5. Development of government programs aimed at supporting the development of organic agriculture, in particular the provision of subsidies and grants for farmers wishing to start organic farming and in transition, in order to mitigate unforeseen economic, financial and other risks.
6. Introducing new educational programs, trainings and seminars on environmental issues, as well as raising awareness about organic agriculture at all levels of the educational system.

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