ISSN 2181-9408

Scientific and technical journal



Sustainable Agriculture



№1(25).2025







Chief Editor
Mirzaev Bakhadir Suyunovich
Rector of "Tashkent Institute of Irrigation and Agricultural Mechanization Engineers" National Research University, Doctor of technical sciences, Professor

Scientific Editor
Iskandar Yunusov
PhD, associate professor of "Tashkent Institute of Irrigation and Agricultural Mechanization Engineers" National Research University

Technical Editor
Kodir Nosurullaev
Assistant professor of "Tashkent Institute of Irrigation and Agricultural Mechanization Engineers" National Research University

EDITORIAL TEAM:

Shavkat Khamraev, PhD, minister, Ministry of the Water Resources of the Republic of Uzbekistan; **Dr.Prof.Shukhrat Shokirov**, Vice-rector for research and innovations, "TIIAME" NRU; **Dr.Prof. Kurban Chariev,** Professor of "TIIAME" NRU; **Dr.Prof.Narkul Khushmatov,** Professor of "TIIAME" NRU; **PhD Uchkun Alimov**, Dean of the faculty "Economics" at "TIIAME" NRU; **PhD Javlon Ishchanov**, Dean of the faculty "Hydromelioration" at "TIIAME" NRU; **Dr.Prof. Astrida Miceikiene,** Dr.Professor, Vytautas Magnus University Agriculture Academy, Litva; **Norita Mohd Nasir**, Universiti Malaysia Sarawak Jln Ensura, Sarawak, Malayziya; **Yevgeniy Kuzmin,** Institute of Economics of the Ural Branch of the Russian Academy of Sciences, Russia; **Akmalia Binti Mohamad Ariff,** Associate Professor, PhD, Faculty of Business, Economics and Social development, The Universiti Malaysia Terengganu (UMT); **Dr.Prof. Baxtiyar Pulatov,** Deputy of the Legislative Chamber of the Oliy Majlis; **Kemal Kantachi,** Dr.Professor,Alanya Aladdin Keykubat university, Turkey; **J.Lubos**, Associate Professor of the Department of "Water Resources and Environmental Engineering" of the Slovak Agricultural University in Nitra, (Slovakia); **G'ulom Bekmirzayev,** PhD, Associate Professor of "TIIAME" NRU; **Mansur Amonov**, PhD, "TIIAME" NRU; **Zayniddin Eshquvvatov**, Doctor of Physical and Mathematical Sciences (DSc), Associate Professor, Faculty of Computer Science and Mathematics, The Universiti Malaysia Terengganu (UMT); **Nozilaxon Muxamedova**, Martin Luther University (MLU), Halle, Germany; Zerema Axmadiyeva, Martin Luther University (MLU), Halle, Germany; **Prasad Sah,** Resource specialist, Chandra Director of Engineering Consultants, Mills Area, (Janakpur, Nepal); **Rustam Baratov,** PhD, "TIIAME" NRU; **Shavkat Xasanov,** DSc, professor, Rector of the Samarkand Institute of Agroinnovations and Research; **Mevlut Gul,** Isparta Unversiteti, Turkey; **T.Espolov**, Academician, Dr. Professor, Vice-President of the MEA RK, National Academy of Sciences of Kazakhstan, (Kazakhstan); **J.Kazbekov**, PhD, Specialist in Water Programs of the Regional Environmental Center of Central Asia, Consultative Group on International Agricultural Research|CGIAR; Iskandar Abdullaev, PhD, Executive Director of the Regional Environmental Center of Central Asia; **Ahmad Xamidov,** DSc, Professor, Leibniz Center for the Study of Agricultural Landscape (ZALF); **Abror Gafurov**, DSc, Professor, Leibniz Center for the Study of Agricultural Landscape (ZALF); **Sherzodbek Murodov,** PhD, Associate Professor of "TIIAME" NRU; **Dilnavoz Shavqiddinova**, PhD, "TIIAME" NRU; **Akmal Durmanov**, Doctoral student of the International Center for Strategic Development and Research in the Field of Food and Agriculture; E'zoz Ozodov, PhD, Associate Professor of "TIIAME" NRU.

Designer: Kodir Nosurullaev.
Note: Only the authors of the article are responsible for the content and materials of the article. The editorial board does not respond to the content of the article!
Founder: Tashkent Institute of Irrigation and Agricultural Mechanization Engineers
Our address: 39, Kari-Niyaziy str., Tashkent 100000 Uzbekistan.
Web-site: www.sa.tiiame.uz, www.susagr.uz

The journal "Sustainable Agriculture" is registered in the Press Agency of Uzbekistan on the 12th of February in 2018 (license № 0957).
In 2019, the journal is included in the list of recommended scientific publications by the Higher Attestation Commission of the Republic of Uzbekistan.

ECONOMY. ECONOMIC SCIENCE. OTHER BRANCHES OF THE ECONOMY.

K.A.Chariev
Main Priority Areas of Economic and Social Development of Society in the Context of "Green" Economy.....5

Sh.A.Mirzaev, F.T.Egamberdiev
Interaction of Open Economy, Islamic Finance and Green Transformation of Uzbekistan: Synergy of Sustainable Development.....8

S.R.Umarov, A.T.Hashimov
Fish Farming in Artificial Basins Economic Effectiveness.....11

U.R.Sangirova, Z.S.Shokhojaeva
Important Aspects of the Use of Digital Technologies in Agriculture and Water Management in Foreign Countries.....14

S.R.Umarov, S.N.Gulmatov
Mechanisms for Shaping Credit Policy in Agriculture.....17

A.U.Estekov
Advancement of Agribusiness: Functions, Challenges, and Contributions to Economic Growth.....19

O.Y.Yakhyaev
Problems and Modern Solutions for Increasing the Economic Efficiency of Sunflower Cultivation.....21

N.J.Mamanazarova
Directions of Sustainable Development of "Green Economy" in Uzbekistan.....24

S.Sh,Boymuratov, Kh.A.Pardaev
Enhancing the Role of Agritourism in the Sustainable Development of Rural Areas in Uzbekistan.....28

F.Numonov, D.Shavqidinova
To Study the Impact of Fiscal Policy on Economic Growth.....32

AGRICULTURE, WATER MANAGEMENT, FORESTRY, AND FISHERIES. AQUACULTURE.

Sh.K.Juraev
Efficient Use of Water in Conditions of Water Resource Scarcity.....37

A.A.Abdullaev
Optimization of Resource Allocation in the Agricultural Sector Using Linear Programming and Python.....41

Kh.N.Mirjamilova
Organic Agriculture and Innovative Methods of Product Growing.....44

O.Kh.Sindarov
Technologies for Growing Strawberries in Hydroponic Conditions.....47

HYDRAULIC AND LAND RECLAMATION ENGINEERING. ARCHITECTURE.

A.Jumanov, A.A.Risbayev, D.Negboyeva
Studying the Issues of Creating a Web Map of Land Use and Land Monitoring Using GIS Technologies.....55

T.U.Atakulov
Effectiveness of Land Management Projects in Conducting Monitoring of Reclaimed Lands.....58

HIGHER EDUCATION. PEDAGOGY.

M.A.Khudayberganova
Zoltán Dörnyei's Perspective on Discursive Competence and its Integration with Communicative Competence.....62

M.B.Mukhiddinova
Methods of Teaching Korean Pronouns.....65

Men Svetlana Rodionovna
Formation of Cultural Competence of Future Teachers of the Korean Language through Internet Technologies.....67

M.D.Odilova
Basic Concepts of Cultural Literacy.....69

N.Salimjonova
Didactic Principles of Teaching Foreign Languages to the Students Majoring in Legal Sciences.....71

G.X.Kuchmuradova, K.A.Kenjayeva
Methodologies for Teaching Terminology in Specialized Fields.....74

F.Musayeva
Bridging the Gap between ESP and Industry Needs.....78

G.T.Inagamova
Enhancing Vocabulary Development of Agricultural Mechanization Students through inside and outside Classroom Learning.....82

E.M.Baxitjanova
Innovative Approaches to English Language Pedagogy: Enhancing Student Engagement and Learning Outcomes.....85

D.O.Abduvakhobova
The Role of the Mughals in World History and Global Civilization. The Baburid Influence on Urdu Literature.....88

M.Sh.Ziyadulloyeva
Improving ESP Students' Critical Thinking through Self-Study.....91

S.E.Surmanov
A Comparative Study of Reading Strategies for Academic Success In ESL Undergraduates.....95

M.Abdurakhimova, D.Rustamova, L.Primova
An Overview of Land Accounting Trends, Encompassing Past, Present, and Future Perspectives, Based on English-Language Articles in the Web of Science Database Last Decade.....100

M.B.Erkaboyeva
Features of Teaching Creative Writing in Foreign Language Classes.....106

MAIN PRIORITY AREAS OF ECONOMIC AND SOCIAL DEVELOPMENT OF SOCIETY IN THE CONTEXT OF "GREEN" ECONOMY

K.Chariev - Doctor of economic sciences, Professor, «Tashkent Institute of Irrigation and Agricultural Mechanization Engineers» National Research University

Abstract

The article highlights the role and significance of reforms and measures implemented in sectors and social spheres of the economy, including the education system, in the context of the transition to a "green" economy. Also, some priority areas for achieving the goals of socio-economic sustainable development in the life of society, including in the agricultural sector, have been studied, and in this regard, relevant conclusions and recommendations have been developed on scientific and practical solutions to existing problems.

Keywords: *Green economy, green technology, renewable energy, environment, ecology, organic products, education, highly qualified scientific personnel, creative abilities, cooperation, integration, cooperative.*

Introduction. It should be noted that one of the strategic goals of public administration is the strict observance of the rule of law in ensuring universal human values and rights, the material, spiritual, and social needs of members of society, their satisfaction with living and working conditions, and the development of sectors and social spheres of the national economy in accordance with the requirements of the conditions and stages of the "green" economy based on innovative development and "green" technologies.

Therefore, today it is becoming an objective necessity to ensure the implementation of such priority tasks as environmental protection, maintaining ecological balance and biodiversity, increasing and systematically effectively using renewable clean energy sources (sun, wind, etc.), effective and targeted use of mechanisms and factors for achieving the Sustainable Development Goals (SDGs) in the life of the state and society, development and stimulation of investment and innovation activities. In this regard, the Decrees and Resolutions of the President of the Republic of Uzbekistan, government resolutions and other regulatory legal acts adopted in the above-mentioned and other important areas serve as a solid foundation for ensuring the implementation of the above-mentioned and other strategic tasks.

In particular, the Decree of the President of the Republic of Uzbekistan dated October 23, 2019 No. UP-5853 "On Approving the Strategy for the Development of Agriculture of the Republic of Uzbekistan for 2020-2030," the Resolution of the President of the Republic of Uzbekistan dated October 4, 2019 No. PP-4477 "On Approving the Strategy for the Transition of the Republic of Uzbekistan to a "Green" Economy for the Period 2019-2030," the Resolution of the Cabinet of Ministers of the Republic of Uzbekistan dated October 20, 2018 No. 841 "On Measures for the Implementation of National Goals and Objectives in the Field of Sustainable Development for the Period up to 2030" created opportunities for solving the problems of economic, social, environmental protection, and providing the population with high-quality, pure organic food products.

Methodology. The solution of the above-mentioned and many other strategic tasks in accordance with modern requirements, in our opinion, directly and indirectly depends on the following priority areas:

1. Further strengthening the responsibility and accountability of responsible managers and employees in their positions and competencies for improving the well-being of society and the people, forming a new moral, cultural, and social consciousness, and strictly observing performance discipline.

2. Creation of a unified system based on the mechanisms and principles of a market economy, modern means of digitalization and technology, instead of administrative management methods, and its innovative improvement in accordance with future stages of reform.

3. Deepening reforms in such priority areas as organizational-structural, economic-social, environmental, and technical-technological, stimulating the targeted, targeted, and economical use of investment sources involved in the technical-technological modernization and diversification of production, preventing their illegal use, and, conversely, strengthening administrative penalties.

4. Creation of favorable conditions, benefits and opportunities for entities producing products (goods, services), prompt provision of them with information on seasonal changes in the volume and prices of products (goods, services) in world markets through the Internet and other social networks based on the introduction of digital technologies.

5. It is advisable to pay special attention to such important areas as treating lower-level managers and employees, economic entities, members of the labor collective and segments of the population within the framework of the criteria of justice, strengthening their sense of satisfaction with working and living conditions based on their economic and social support, labor motivation and interest through the introduction and effective use of innovations.

As is known, in the context of the transition to a "green" economy, the training and retraining of personnel with modern technical and technological software knowledge, qualifications, and experience in public administration and the socio-economic life of society, as well as their targeted and targeted placement, taking into account their professional skills, the creation of a unified integrated system for increasing the scale and quality of education and its digitalization, is becoming one of the priority areas of national importance today, and special attention is paid to the consistent development of this system.

Results. The organization and innovative development of quality education are based on measures such as further strengthening of integration links between kindergartens, schools, higher educational institutions and organizations of the postgraduate education system, considering this system as a value-added chain from human capital and cognitive abilities, introducing innovative digital technologies and modern scientific achievements, further increasing the sources and types of targeted investments that will bring

great socio-economic benefits in the future, and their targeted use, which will create a solid foundation for achieving the Sustainable Development Goals (SDGs) in the activities of material sectors of the economy and social spheres in the future.

Based on the experience of countries with a developed education system (Finland, China, Japan, South Korea, etc.), the creative abilities of children in various fields (culture, education, art, sports, technology, construction, etc.), the potential for logical reasoning, independent thinking and decision-making, what profession they are interested in and strive for, should be determined with the help of psychologists in the educational process at school, and even in kindergarten, and their further development should be constantly monitored by the relevant responsible persons and organizations at the stages and processes from school to university and subsequent educational institutions. In this process, it is important to identify relevant subjects based on each student's abilities and chosen profession, and to teach them based on modern advanced technological tools and methods.

In this regard, as one of the important directions of the reforms carried out in the field of education in the Republic of Uzbekistan, it should be especially noted that the vocational guidance of children begins directly from primary grades, and the following measures are of great importance. According to it:

- Starting from the 2022/2023 academic year, provide primary school students with an understanding of various professions available in the labor market within the framework of the subjects included in the curriculum.

- Organization of various meetings and field lessons for students in grades 5-7 in order to get acquainted with the work activities of professionals.

- Diagnostics are conducted to determine the professional aptitude of students in grades 7-9, and based on the results, excursions are organized to production enterprises, craft centers, and other organizations.

Priority professions for schoolchildren are determined in accordance with the socio-economic potential and growth points of the regions, and measures are taken to train 10th and 11th grade students in these professions, including in vocational training centers, vocational training centers for the population of mahallas, and educational institutions where short-term courses have been opened.

This innovative systematic approach, in turn, will serve as a fundamental basis for each young person in the future to acquire deep knowledge, skills, and experience in their chosen field and profession, and to effectively apply them in practice. In these educational processes, based on the integration of education and practice, it is advisable to provide the younger generation with an understanding of the system of measures taken at the state level and by local government bodies to ensure the cleanliness of the environment, air, land and water resources, their use and reproduction based on resource-saving technologies, as well as environmental problems such as "green technology," "green space," and to increase their knowledge, experience, and skills. This direction and system of measures will undoubtedly have a direct positive impact on improving the quality and effectiveness of postgraduate education, and on the processes of training highly qualified scientific personnel who meet modern requirements.

Discussion. Currently, especially in the future, when effectively organizing research work and choosing their topics, it is necessary to be based on innovative products, developments and achievements created in a particular direction and field on a global scale, to ensure the compliance of the obtained scientific-theoretical and methodological-practical results with the requirements of international standards. Regardless of the sphere and direction of future research, their basis should be the introduction of innovations, the improvement of the principles and mechanisms of the "green" economy, the search for scientific-theoretical, methodological, and methodological-practical solutions to increase the efficiency of resource-saving methods and tools of "green" technologies, and the justification of ways to implement them in production.

Indeed, their implementation, in essence, is important in terms of creating comfortable living conditions and a healthy lifestyle, increasing the well-being of the population and strengthening the feeling of satisfaction with life, including by growing environmentally friendly organic agricultural products rich in vitamins and microelements necessary for human health and providing the population with them at the level of medical standards. It should also be noted that the creation and implementation of innovations play a positive role in achieving the Sustainable Development Goals (SDGs) in the life of the state and society, fully using the potential and opportunities of available resources, increasing the volume and improving the quality of products (goods, services), and exporting them to world markets.

At the same time, it is necessary to take into account another important aspect, namely, that a certain innovation recognized today, under the influence of the passage of time and the development of science, will give way to other innovations that will have a greater socio-economic effect on society and humanity in the future, that is, the law of the philosophy of negation of negation. Therefore, it is advisable to focus research on improving and developing sectors and social spheres or directions of the national economy on researching the scientific, methodological, and practical foundations for solving the tasks and problems specific to each stage of the transition to an innovative "green" economy.

These include, for example, reducing the impact of global climate change and creating crop varieties that quickly adapt to it, providing the population with environmentally friendly organic products, reducing environmental pollution and the harmless use of geoclimate, solar and wind, water and bioresources, gases released from waste processing based on modern technologies in preserving biodiversity, increasing renewable clean and inexpensive energy sources that reduce the emission of toxic carbon dioxide (CO_2) into the environment, including improving the quality of arable land and water resources in agriculture. In general, taking into account other such directions when choosing promising research topics, subjects, and objects creates a fundamental basis for deepening the scientific novelty and practical significance of future research work, increasing the economic and social effectiveness of the obtained results.

It should be especially noted that the Decree of the President of the Republic of Uzbekistan dated February 16, 2017 No. UP-4958 "On Improving the System of Postgraduate Education" is of great importance in order to transform and effectively manage the processes of higher education and scientific research within a single system, to organize the defense of dissertations in two stages. The effective implementation of the priority tasks defined in this Decree largely depends on the further strengthening of interaction between higher educational and research institutions based on transformation, the formation of topics for candidates and doctoral students with interest, aspirations, talents, and abilities in the process of studying at a higher educational institution, improving their knowledge and skills in the chosen topics, as well as the creation of a

system for preliminary familiarization with the procedures for conducting and formalizing research work. At the same time, it is advisable to develop and implement measures to assist them in mastering modern technical and technological tools, skills in working with social networks, and foreign languages. It should be especially noted that in the texts of most dissertations submitted to the Scientific Councils in the state language, there are editorial and orthographic errors and shortcomings. Therefore, in addition to specialization, it is advisable to take a qualification exam in the subject "Native Language and Literature" along with the subjects selected by the Academic Council.

At the same time, it should be noted that special attention should be paid to the further improvement of the system of postgraduate master's, doctoral studies, and independent research education, the training of highly qualified scientific personnel with higher education in each specialty, and the development of an information resource base so that researchers with sufficient knowledge, skills, and abilities in the chosen specialty, first of all, deeply understand the existing problems in the sectors of the national economy and the social sphere, and can imagine measures and ways to solve them. In this regard, it is necessary to recognize, among other things, the existence of an important link that forms the core of the country's agro-industrial complex, mutually organizes the processes of production of products (goods, services) in all sectors and spheres of the national economy, that is, problems that negatively affect the development of agriculture. These include, in general, the following main problems and situations that have a negative impact, namely:

- insufficient, low-quality, high-price, growing, and monopolistic provision of material and technical resources, types of services provided to farms, dehkan, household, and subsidiary farms producing agricultural products;
- low profitability of farmers and other economic entities due to the discrepancy (disparity) between these prices and the prices of agricultural products and, in most years, loss-making activities;
- as a result, there is a tendency towards a decrease in the fertility and yield of sown lands in farms due to the untimely implementation of agrotechnical measures in the required volume and quality in the next production year;
- in many cases, administrative-command methods are given priority instead of economic mechanisms corresponding to market conditions and competition;
- gross violation of payment and economic relations between agricultural clusters and, in most cases, economic entities operating within them on the basis of voluntary-compulsory mutual agreements and contrary to the interests of producers;
- the value-added chain in the system of sale and export of small-scale agricultural food products grown mainly by small commodity entities based on their own property and private entrepreneurship, that is, farms, dehkan farms, household plots and other households, the production and economic relations between the entities participating in its structure do not fully correspond to the mechanisms and requirements of the market economy;
- lack of a system for providing them with information corresponding to annual and seasonal changes in market conditions and insufficient attention to its digitalization;
- as an important organizational and structural direction of agricultural development, many problems awaiting their solution in the future can be cited, such as the insufficient establishment of cooperative, cooperative, and integration ties in accordance with modern requirements.

Conclusion. Taking into account the above main problems, in our opinion, in order to organize and develop cooperative forms and relations in the republic's agriculture based on the experience of economically developed countries such as the USA, Germany, France, and Japan, it is necessary to methodologically and practically correctly organize the implementation of the newly adopted Law of the Republic of Uzbekistan "On Agricultural Cooperatives," and not to rush in this important and complex process. It is advisable to pay special attention to another important issue - the training of personnel with sufficient knowledge, skills, and experience in organizing cooperatives. Because, both scientifically and methodologically-practically, improperly organized cooperatives will not yield the expected results and will inevitably lead to the emergence of distrust among the founders regarding its advantages and benefits.

As one of the advantages of cooperatives over agricultural clusters, through the principle of voluntariness and the mechanism of contributing property shares to the cooperative, all categories of subjects and employees working in them have the right of both founding member and real owner. As a result, they will have the opportunity to use the powers of discussing decisions on the organization and development of cooperative activities at the general meeting of cooperative members and supervisory boards and submitting their proposals to it. Most importantly, a) implementation within the cooperative within an integrated system of product producers and their service departments (mechanization, chemistry, financial and accounting center, marketing and advertising, sales and export of products to domestic and foreign markets, etc.), b) creation of joint (hybrid) cooperatives in cooperation between deeply specialized cooperatives for specific types of products or services, c) their economic management according to mutual interest mechanisms and dependence on the final results of cooperative activities, and, finally, d) strengthening of aspirations, interests and initiatives for its further improvement, in conclusion, are important as the most priority promising organizational-structural and economic-social factors ensuring the effectiveness of the cooperation process.

References:

1. UNEP (2021). Global Green Economy Index. United Nations Environment Programme.
2. OECD (2022). Green Growth and Sustainable Development. OECD Publishing.
3. World Bank (2020). Inclusive Green Growth: The Pathway to Sustainable Development.
4. IRENA (2023). Renewable Energy and Jobs – Annual Review. International Renewable Energy Agency.
5. Mirziyoyev, Sh. (2020). National Strategy for Transition to a Green Economy in Uzbekistan. Government Report.