ISSN 2181-9408

Scientific and technical journal





Sustainable Agriculture

№2(22).2024







Chief Editor

Salohiddinov Abdulkhakim

Vice-rector for international cooperation

Professor at "Tashkent Institute of Irrigation and Agricultural Mechanization Engineers"

National Research University, Doctor of technical sciences

Scientific Editor

Yunusov Iskandar

PhD, "Tashkent Institute of Irrigation and Agricultural Mechanization Engineers"

National Research University

Editor

Hodjaev Saidakram

Associate professor at "Tashkent Institute of Irrigation and Agricultural Mechanization Engineers"

National Research University, Doctor of technical sciences

Candidate of technical sciences

EDITORIAL TEAM:

SH.Khamraev, PhD, minister, Ministry of the Water Resources of the Republic of Uzbekistan; **H.Ishanov,** PhD, chief specialist, Cabinet Ministers of the Republic of Uzbekistan; **Dr.Prof.B.Mirzayev,** Rector of "TIIAME" NRU; **Dr.Prof.T.Sultanov,** Vice-rector for research and innovations, "TIIAME" NRU; **Dr.Prof.M.Khamidov,** "TIIAME" NRU; **Dr.Prof. A.Pulatov,** PhD, associate professor, "TIIAME" NRU; **B.Pulatov,** PhD, "TIIAME" NRU; **G.Bekmirzaev,** PhD,"TIIAME"NRU; **M.Amonov,** PhD, associate professor,"TIIAME" NRU; **Sh.Khasanov,** PhD, associate professor, "TIIAME" NRU; **M.Tursunov,** PhD, "TIIAME" NRU; **B.Sultanov,** PhD, "TIIAME" NRU; **Dr.Prof.N.Khushmatov,** Chief Scientific Secretary of the Agricultural and Food Supply Production Center; **Sh.Murodov,** PhD, "TIIAME" NRU; **Dr.Prof. O.Tursunov,** "TIIAME" NRU; **M.Juliev,** PhD, "TIIAME" NRU; **Dr.Prof. A.Karimov,** "TIIAME" NRU.

EDITORIAL COUNCIL:

Dr.Prof.N.Vatin, Peter the Great St. Petersburg Polytechnic University, (Russia); **Dr.Prof.Y.Ivanov,** Russian State Agrarian University - Moscow Timiryazev Agricultural Academy, executive director of Engineering and Land Reclamation named after A.N. Kostyakov, (Russia); **Dr.Prof.D.Kozlov,** Moscow State University of Civil Engineering – Head of the Department Hydraulics and Hydraulic Engineering Construction of the Institute of Hydraulic Engineering and Hydropower Engineering, (Russia); **D.Ziganshina,** PhD, Scientific Information Center of Interstate Commission for Water Coordination in Central Asia; **J.Lubos,** associate professor at "Department of Water Recourses and Environmental Engineering" of Slovak University of Agriculture in Nitra, (Slovak); **Acad.Dr.Prof.P.Kovalenko,** National Academy of Agricultural Sciences of Ukraine, Advisor to the Director of the Research Institute of Melioration and Water Resources, (Ukraine); **Prof.N.Xanov,** Head of the Department of Hydraulic Structures RSAU – MAA named after K.A.Timiryazev, (Russia); **Krishna Chandra Prasad Sah,** PhD, M.E., B.E. (Civil Engineering), M.A. (Sociology) Irrigation and Water Resources Specialist. Director: Chandra Engineering Consultants, Mills Area, (Janakpur, Nepal); **Dr.Prof.A.Ainabekov,** Department Mechanics and mechanical engineering, South Kazakhstan State University named after M.Auezov, (Kazakhstan); **Acad.Dr.Prof.T.Espolov,** National academy of sciences of Kazakhstan, Vice-President of NAS RK, (Kazakhstan); **I.Abdullaev,** PhD, the Regional Environmental Center for Central Asia, Executive Director; **Sh.Rakhmatullaev,** PhD, Water Management Specialist at World Bank Group; **A.Hamidov,** PhD, Leibniz Centre for Agricultural Landscape Research|ZALF, (Germany); **A.Hamidov,** PhD, Leibniz Centre for Agricultural Landscape Research|ZALF, (Germany). **A.Gafurov,** PhD, Research scientist at the department of hydrology, GFZ Potsdam (Germany). **Dr,Prof. Martin Petrick,** Justus-Liebig-Universität Gießen JLU Institute of Agricultural Policy and Market Research; **Eldiiar Duulatov,** PhD, Research Fellow, Institute of Geology, National Academy of Sciences, Kyrgyzstan; **Gisela Domej,** University of Milan-Bikokka Professor of Earth and Environmental Sciences, Italy; **Moldamuratov Jangazy Nurjanovich,** PhD, Taraz Regional University named after M.Kh. Dulati, Head of the Department of "Materials Production and Construction", Associate Professor, Kazakhstan; **Muminov Abulkosim Omankulovich,** Candidate of Geographical Sciences, Senior Lecturer, Department of Meteorology and Climatology, Faculty of Physics, National University of Tajikistan. Tajikistan; **Mirzoxonova Sitora Oltiboevna,** Candidate of Technical Sciences, Senior Lecturer, Department of Meteorology and Climatology, Faculty of Physics. National University of Tajikistan. Tajikistan; **Ismail Mondial,** Professor of Foreign Doctoral Faculty, University of Calcutta, India; **Isanova Gulnura Tolegenovna,** PhD, Associate Professor of Soil Ecology, Research Institute of Soil Science and Agrochemistry named after UUUspanov, Leading Researcher, Kazakhstan; **Komissarov Mixail,** PhD, Ufa Institute of Biology, Senior Research Fellow, Soil Science Laboratory, Russia; **Ayad M. Fadxil Al-Quraishi,** PhD, Tishk International University, Faculty of Engineering, Professor of Civil Engineering, Iraq; **Undrakh-Od Baatar,** Head of the Central Asian Soil Science Society, Professor, Mongolia; **N.Djanibekov,** Dr, External Environment for Agriculture and Policy Analysis (Agricultural Policy), Leibniz Institute of Agricultural Development in Transition Economies (IAMO) Theodor-Lieser-Str. 2 06120 Halle (Saale) Germany; **A.Karimov,** Dr, Head of the ICBA Regional representative office for Central Asia and South Caucasus.;

Designer: Dilmurod Akbarov.

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 , www.sa.tiiame.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.

ARCHITECTURE. LANDSCAPE ARCHITECTURE.

Z.Kannazarova, L.Ryssalieva, S.Khamidov, K.Khamraev, G.Jaliliova, B.Najodov
Management practices for improving soil health in the Aral Sea Basin: a case study from Karakalpakstan.....5

ECONOMY. ECONOMIC SCIENCE. OTHER BRANCHES OF THE ECONOMY.

K.A.Chariev
Scientific and methodological bases of resource potential and its importance in the formation of organic agriculture in the conditions of a green economy.....9

U.Alimov, N.Omonov
Theory and strategy of the Bioeconomy: the case of Finland.....13

Kh.Khujamkulova, Z.Salomova, M.Uralova
Investments in agriculture and the efficiency of their usage.....16

M.Inoyatova
Development of organizational and economic land regulation mechanism relations in the arid zone.....19

M.Tosheva
Prospects for using the principles of "green economy" in agriculture.....23

Sh.Khamrayeva
Control innovative the development of the bioeconomic branches of the Republic of Uzbekistan.....30

K.Nosurullaev
Methodological basis of formation of agricultural insurance services in developing countries.....34

N. Abdurazakova
"Green economy" and its role in solving water and energy problems in Uzbekistan.....37

K.Shaakramov
On the issue of improving the processes of modernization the national economy.....40

E.Shodiyev, U.Matkarimov
Improving accounting of financial results in agricultural enterprises and financial analysis: evidence from Uzbekistan.....44

M.Kholikulov
The importance of investments and the organizational-economic basis of involvement in the field of fruit and vegetable sector.....47

A.Berdimurodov
The role and importance of digital technologies for innovative and sustainable development of the agricultural system of the Republic of Uzbekistan.....50

Z.S.Shokhojaeva, U.R.Sangirova
Improving the practice of subsidizing agricultural production.....53

I.Yunusov
Features and scientific-theoretical foundations of intensive development of the fish farming.....56

G. Shadmanova
Modern factors of modeling the development of production of farms and dehkan farms in Uzbekistan.....61

D.I.Mukumova,
The spatial gender equality and women's leadership in scientific activity in Uzbekistan.....63

ENVIRONMENTAL PROTECTION. WATER MANAGEMENT, HYDROLOGY.

M.Burkhonova, J.Narzullayev, B.Matyakubov
Comparison of furrow and sprinkler irrigation systems (in the example of carrot and cauliflower).....67

F.Bekchanov
Ensuring reliable operation of pump units.....71

E.Ozodov, N.Ozodova, D.Tadjiyev
Development of a multi-measuring system for control and prediction of process water resources on the arduino platform.....76

A.Djalilov, O.Nazarov
Implementation of intelligent control systems in water supply networks.....80

Kh.I.Muradov, A.U.Djalilov
Aquatic Elevation Tracking Mechanism.....84

Sh.Shoergashova, T.Liu, N.Ibrokhimova, B.Karimov
Land use impact on water quality of the zarafshan river basin.....88

HIGHER EDUCATION. PEDAGOGY.

S.Surmanov
A comparative analysis of reading skill development through graded readers.....92

O.Yoqubov
Implementing interactive learning methods requirements of time.....95

N.Yuldashova
English proficiency for advancing agricultural development.....98

M.Ziyadulloyeva
Enhancing agricultural development through teaching agricultural terms in English.....101

D.Madalieva
Study of the emergence of the concept of accounting in linguistic research.....104

POWER ENGINEERING, ELECTRICAL ENGINEERING, AUTOMATICS. COMPUTING TECHNOLOGY.

M.Ismailov, O.Ismailov, X.Temirova
Processing of blood cell images hybrid methods of acute lymphoblastic diagnosis CNN features.....106

M.Ismailov, O.Ismailov, X.Temirova
Dental Radiography Analysis Using YOLOv8 Deep Learning Using Raspbbery pi Device.....110

F.Kucharov, M.Begmatov
Electromagnetic consumer sensor.....113

S.R. Umarov, T.M.Bayzakov, Sh.B. Yusupov, A. Abduraxmonov, I. Kholmirzaev, S.Qurbonazarov
In greenhouses vegetable crops of seedlings cultivation electrotechnology effectiveness of assessment (sweet pepper plant on the example).....115

INVESTMENTS IN AGRICULTURE AND THE EFFICIENCY OF THEIR USAGE

Kh.Khujamkulova, Z.Salomova, M.Uralova - "Tashkent institute of irrigation and agricultural mechanization engineers" National Research University

Abstract

The rate of development in each and every country is identified through the measurement called "economical potential". The role of investments is extremely essential in economic growth. This is because investing is put into use in order to raise power of particular country and ameliorate the condition of enterprises in general, indigenous people in particular. The Republic of Uzbekistan, which has chosen the step-by-step form of market economy is aiming to attract more and more local and foreign investments to develop agriculture. The issues with importance of investing in agriculture, process of attracting them, efficiency and increasing the rate of it will be explained in this article.

Keywords: *investments, efficiency, real investments, income, population, agriculture, risky investments, venture, financial mechanisms, investments in agricultural sphere, using internal investments efficiently.*

Introduction. Investment is traditionally defined as the "commitment of resources to achieve later benefits". If an investment involves money, then it can be defined as a "commitment of money to receive more money later". From a broader viewpoint, an investment can be defined as "to tailor the pattern of expenditure and receipt of resources to optimize the desirable patterns of these flows". When expenditures and receipts are defined in terms of money, then the net monetary receipt in a time period is termed cash flow, while money received in a series of several time periods is termed cash flow stream.

In finance, the purpose of investing is to generate a return on the invested asset. The return may consist of a gain (profit) or a loss realized from the sale of a property or an investment, unrealized capital appreciation (or depreciation), investment income such as dividends, interest, or rental income, or a combination of capital gain and income. The return may also include currency gains or losses due to changes in foreign currency exchange rates.

Investors generally expect higher returns from riskier investments. When a low-risk investment is made, the return is also generally low. Similarly, high risk comes with a chance of high losses. Investors, particularly novices, are often advised to diversify their portfolio. Diversification has the statistical effect of reducing overall risk.[1]

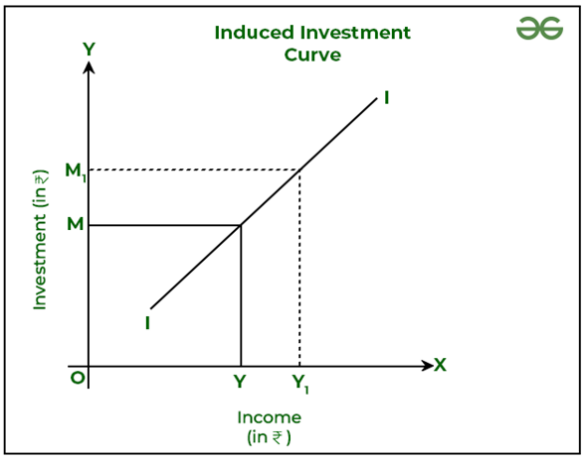


Figure 1. Induced Investment Curve

Like other sectors, the development of agriculture is mainly ensured by investments. The purpose of domestic policy, which is created before the establishment of agricultural activities, is to create alternative conditions for investments and to maximize efficiency. The term investment is derived from the Latin word meaning to spend or put money. Investors, users of investment activity objects, banks, insurance companies and funds are the main terms in investment activity. Investment is a long-term deposit of money in the economy for the purpose of earning income. The main purpose of them is creativity, expansion of basic funds, reconstruction and technical re-equipment. In addition, investments - acquisition of patent intellectual property rights to securities, etc. Investments are included in objects of business activity that bring income or achieve a certain social effect. Investment activity in agriculture is a set of practical actions of legal entities, farmers and farmers, citizens and the state to make investments. In addition, investments are divided into groups according to participation in the process, according to the direction of influence and goals, risks. More specifically, direct and indirect participation in the process, replacement, expansion and renewal according to the direction of influence and venture, direct according to goals, risks, portfolio and annuity. For example, the main differentiator between equity investments is the investor. That is, if an investor participates in the investment process, it is a direct investment, and if the investor does not participate, a representative participates on his behalf, it is an indirect investment.[1]

Attracting investments in our country have been being paid great attention to their effective use. As an example, we can cite the fact that in recent years, a number of activities have been carried out in order to increase the investment attractiveness of our country and to attract more foreign investments to the economy. To be more precise, in order to protect the rights and interests of investors, the country adopted a new Tax Code, Law on Investment and Investment Activities, and Law on Mediation., new facilities such as "investment visa", "investment credit" and "investment subsidy" were introduced. In November 2022, the first plenary session of the Council of Foreign Investors was held, and the number of investments will reach 120 billion dollars in the next 5 years, at least 70 percent, president of Uzbekistan Shavkat Mirziyoyev noted that it is intended to attract foreign investments worth billions of dollars.[2]

Investing, broadly, is putting money to work for a period of time in some sort of project or undertaking in order to generate positive returns (i.e., profits that exceed the amount of the initial investment). It is the act of

allocating resources, usually capital (i.e., money), with the expectation of generating an income, profit, or gains.

One can invest in many types of endeavors (either directly or indirectly) such as using money to start a business, or in assets such as purchasing real estate in hopes of generating rental income and/or reselling it later at a higher price.

Investing differs from saving in that the money used is put to work, meaning that there is some implicit risk that the related project(s) may fail, resulting in a loss of money. Investing also differs from speculation in that with the latter, the money is not put to work per-se, but is betting on the short-term price fluctuations.

Investments are quintessential not only in agriculture, but also in other fields. Since enterprises must have been organized perfectly in both, finance and technology so as to evolve them even more. To get this result enterprises should be provided with state-of-the-art buildings, required technologies, agricultural mechanisms, internal irrigation, varieties, domestic animals and manufacturing tools.

For many years, the country has been spending a lot of money to build better roads, buildings, and water systems. This is to make life better for people and help the economy grow. Uzbekistan has many rivers, lakes, and water storage areas. These are important for making sure people in cities have clean drinking water and helping farmers grow crops. Uzbekistan is updating its infrastructure to keep up with more and more people living in cities. They're putting in new, high-tech pumps in many places around the country. Companies that sell pumps, pipes, and similar things can make a lot of money by selling their products within their own country and to other countries. Foreign companies could make a lot of money by accepting contracts from the government to build new water pumping systems in different parts of Uzbekistan.

Nowadays money that comes from investments is advised to be used for efficient technologies and intellectual properties. To solve above-mentioned issue effectively some investments ought to be spent to particular department of agricultural enterprises as an example. Hence monetary help which comes from investments is usually spent to enhancement of permanent and temporary capitals and intellectual properties. In terms of their duration and period, they are divided into two groups. They are long-term and short-term investments. If investment is spent on sales of main properties and construction, the investment will be long-term investment.[3]

Supported investment and innovative development of agriculture by the state will cause following outcomes:

a) Attracting investments to agriculture will increase;

b) increasing investment activity in ASM enterprises;

c) Production volume of competitive and high-quality products

output volume increases;

d) Innovative activity in the network will increase;

e) The process of reproduction in agriculture will be stabilized.[4]

Many factors, divided into two groups, affect the economic efficiency of investments. The first group includes internal factors related to the enterprise, and the second group includes external factors independent of the enterprise. The low economic efficiency of agricultural investments is significantly determined by the second group of factors. These include: crises, price imbalances, high interest rates, interest rates. Now government of Uzbekistan is taking measures for investments in both production and non-production. For example, when calculating income tax, all enterprises are taxed on investments in production and non-production sectors has the right to reduce the amount of income. These issues are the issues of state, namely, it is impossible to increase the efficiency of investment without solving them at the state level. The exemption is granted only when the enterprise uses the full amount of depreciation allowances. At the same time, the exemption should not exceed 50% of the tax amount. [5]

Table 1.

Factors affecting investment efficiency will be demonstrated in the following [5]

Internal factors	External factors
Choosing the right investment object	Interest rates on loans
Terms of construction and development of the object	Crisis processes
Complexity of investments	Ratio of prices to agricultural and industrial products
Aggregation of deposits by objects	Income tax
Compliance with the economic order	Product demand
Specialization of the enterprises, type of production activity	Seasonality of production
Production technology and organization	Natural climatic conditions
Product marketing	
Product cost	
Labor productivity	

The attraction of foreign investment to the country depends on its international economic integration. International economic integration is the economic, socio-political and cultural unification of countries, which occurred on the basis of the development of multilateral stable relations between national economies (states) and the division of labor. The integration of Uzbekistan with the countries of Central Asia will serve to increase the effectiveness of foreign economic relations in the country's region. It is necessary to use investments wisely in order to reliably ensure the use of investments that satisfy the demand for agriculture. Investments in agriculture in all directions should be directed in accordance with the purpose.[6]

CONCLUSION. Investments are being attracted to provide agricultural production resources. Thanks to investments, the development of science and technology is accelerating in the country, the process of using its achievements is being developed, and advanced technologies are being introduced. Investments are made with small funds of the enterprise or funds attracted from abroad. During the years of independence, the number of investments is increasing. In order to determine the absolute and comparative effectiveness of the use of investments, it is necessary to use a system of certain indicators. In the future, in order to attract investments at the level of demand and increase the economic efficiency of their use, it is necessary to expand the sources of investments, to develop the infrastructure necessary for attracting investments, to attract foreign investments widely, and to establish the purposeful and effective use of investments.

References:

1. Law about “Investments and about investments” of Republic of Uzbekistan in the 25th of December 2019.
2. Financing of investing projects: Textbook 2-part / E.I.Nasirov, Sh.Sh. Asamxodjayeva-T: “Economics-Finance”, 2020. – 424b. 150-page.
3.” Uzbekistan-2030” The issues of increasing investments even more and developing market of intangible assets
4. David L. Debertin. Agricultural Production Economics Textbook. 2nd ed. Published by McMillan. University of Kentucky, USA. 2012.
5. President’s sentence of Republic of Uzbekistan, 11.08.2020 PQ-4803.
6. Cabinet’ sentence of Republic of Uzbekistan, 14.02.2024. Number-92.
7.https://daryo.uz/2024/03/01/
8. https://hozir.org/
9. https://n.ziyouz.com/
10. https://www.norma.uz