NATIONAL UNIVERSITY OF UZBEKISTAN

2022 REVIEW OF PROGRESS, CHALLENGES AND OPPORTUNITIES

SUSTAINABLE DEVELOPMENT GOALS

CONTENTS

FOREWORD

The practical results of the reforms aimed at developing higher education in our country in the recent years, the achievements of teachers and young people, the results that are being implemented globally are a practical realisation of our consistent reforms. The President of the Republic of Uzbekistan signed the Decree No. PQ-4358 on June 17, 2019 “On measures to radically improve the system of training of demanded qualified personnel and development of scientific potential at the National University of Uzbekistan named after Mirzo Ulugbek in 2019-2023”, and Decree No. PF-5847 on October 8, 2019 “The conception of development of the system of higher education in the Republic of Uzbekistan until 2030” that promote the improvement of activities of all higher education institutions, especially our University, which is one of the main steps towards development.

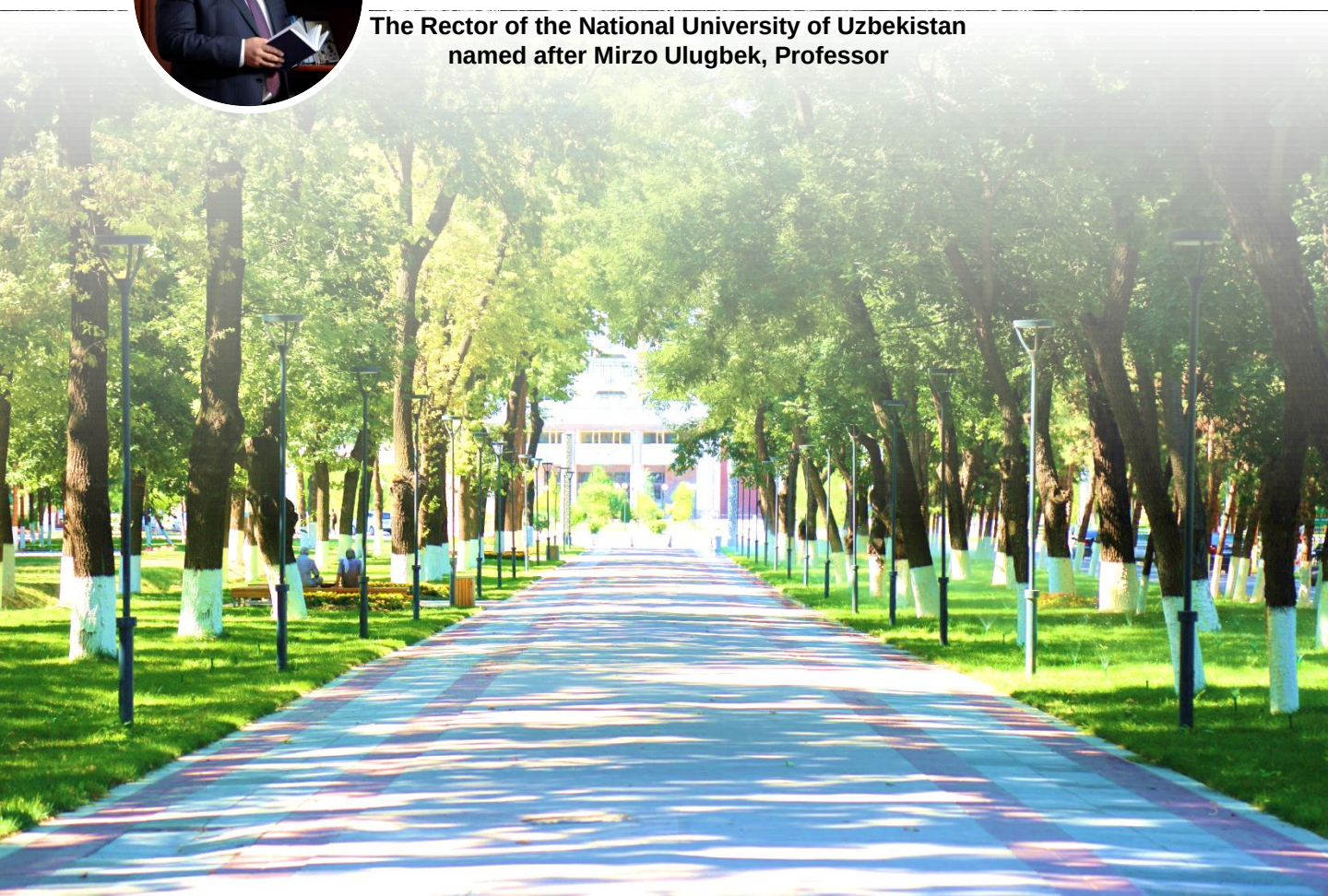
In recent years there have been great changes and renovations in the life of our university. In particular, there are currently 14 academicians, more than 200 Doctors of Science and Professors, about 550 teachers with PhD degrees and Associate Professors in our university. In our prospective five-year strategy for the University, we plan to radically reform the educational process, improve the scientific activities, enhance and strengthen the University's position in international and national rankings.

We are aiming at that, of course. For this purpose, we must improve the quality of education, expand scientific and innovative spheres of research, expand cooperation with foreign institutions of higher education, develop scientific cooperation with foreign scientists and broaden the involvement of our youth in science and innovative activities.

In order to promote the university entrance to the top 500 institutions of higher education in the world, as well as to increase its scientific potential, I invite all professors, teachers, young scientists, post-graduate students to be selfless and active to contribute to the development of our country and our university.

INOM MADJIDOV

The Rector of the National University of Uzbekistan named after Mirzo Ulugbek, Professor



END POVERTY IN ALL ITS FORMS EVERYWHERE

ANALYSIS OF SCIENTIFIC ARTICLES PUBLISHED IN 2022 IN SCIENTIFIC JOURNALS INDEXED IN THE SCOPUS DATABASE ON THE FIRST GOAL OF SUSTAINABLE DEVELOPMENT AT NUU

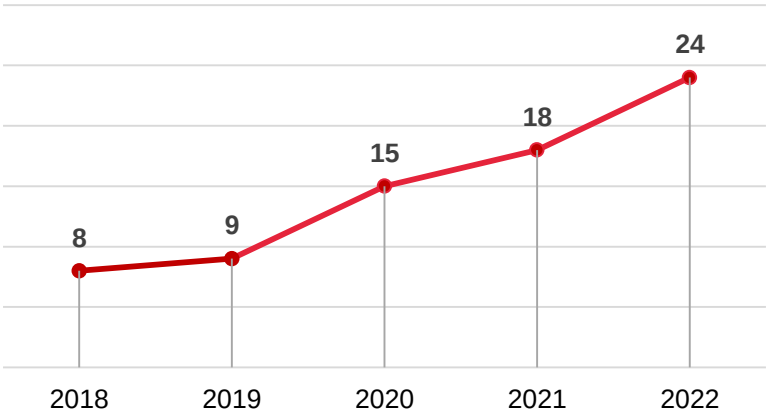
Publications

7	78	2
Number of publications	Total views	Citation

Number of university publications

0	0	5	1	1
2018	2019	2020	2021	2022

The number of publication views



END HUNGER, ACHIEVE FOOD SECURITY AND IMPROVED NUTRITION AND PROMOTE SUSTAINABLE AGRICULTURE

ANALYSIS OF SCIENTIFIC ARTICLES PUBLISHED IN 2022 IN SCIENTIFIC JOURNALS INDEXED IN THE SCOPUS DATABASE ON THE SECOND GOAL OF SUSTAINABLE DEVELOPMENT AT NUU

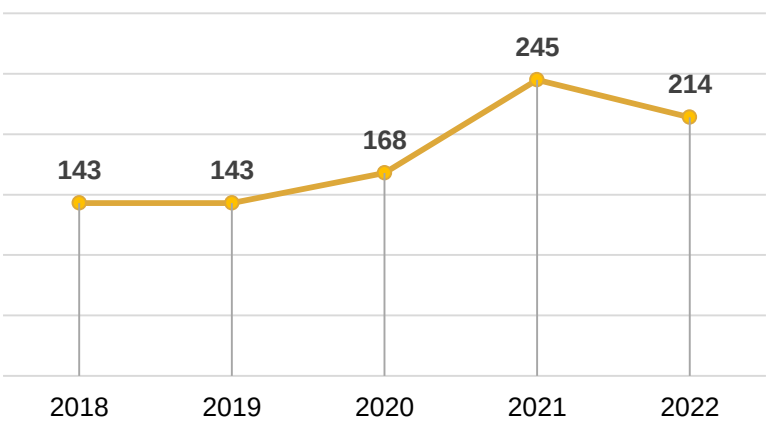
Publications

32	913	513
Number of publications	Total views	Citation

Number of university publications

2	3	8	8	9
2018	2019	2020	2021	2022

The number of publication views



3 GOOD HEALTH AND WELL-BEING

ENSURE HEALTHY LIVES AND PROMOTE WELL-BEING FOR ALL AT ALL AGES

A roundtable discussion was held on the topic
"BREAST CANCER PREVENTION"

At the end of the event, **200** volunteers were examined by oncologists.

"BLOOD DONATION ACTION"

150+ students and professors participated on a voluntary basis.

"SPORTS - A GUARANTEE OF HEALTH"

THE WINNERS OF MINI FOOTBALL "RECTOR'S CUP" HAVE BEEN DETERMINED AND THEY ARE AWARDED IN THE FOLLOWING AMOUNTS:

1-PLACE – Faculty of History
7 MILLION SOUMS

2-PLACE – Faculty of Biology
5 MILLION SOUMS

3-PLACE – Faculty of Taekwondo and Sports Activities
3 MILLION SOUMS

ASIAN TAEKWONDO CHAMPIONSHIP

in the 68 kg weight category

NUU student Ulugbek Rashitov became **the champion of Asia**.

in the 73 kg weight category

Svetlana Osipova, a student of NUU, **won a bronze medal**.

A STUDENT OF NUU WON

two gold **one silver**

MEDALS

Asian Championship in the sports of chess

AT THE ASIAN PARACANOE CHAMPIONSHIP

IN PATAYA, THAILAND

the student of NUU took the 2nd place and won the silver medal.

A student of NUU won

the II international chess tournament for the prize of the President of the Republic of Uzbekistan in Tashkent.

"FIDE Congress 2022"

A student of NUU was awarded the title

WOMAN GRANDMASTER

at the international women's conference held by the International Chess Federation (FIDE).

At the 27th Sharjah International Chess Championship in the UAE

the student of NUU won the

1st place

IN THE BLITZ CATEGORY OF CHESS

"3rd Gujarat International Open GrandMasters Chess Tournament 2022"

IN THE INTERNATIONAL CHESS TOURNAMENT

The student of NUU won the competition among **376 participants**.

JUNE 20-23, 2022

2

An inter-university team international chess tournament was held for the Moscow State University chess cup.

The team of **the National University of Uzbekistan won the 2ND PLACE**.

ENSURE INCLUSIVE AND EQUITABLE QUALITY EDUCATION AND PROMOTE LIFELONG LEARNING OPPORTUNITIES FOR ALL

A doctoral student of NUU

INTERNSHIP

at the International State Institute of Ecology named after A.D. Sakharov of the Belarusian State University

NUU SCIENTISTS INTERNSHIP AT KHARKOV NATIONAL UNIVERSITY

The young scientists worked on modern laboratory equipment

- x-ray structure,
- x-ray fluorescent,
- IQ,
- chromatographic spectroscopy,
- gas chromatography

and other instruments and studied modern quantum-chemical computing methods

7 German language students

2 Linguistics (German) master's students

DAAD

WON DAAD SCHOLARSHIPS

STUDENTS OF NUU WHO WON SCHOLARSHIPS FOR THE 2022-2023 ACADEMIC YEAR:

State scholarship named after Beruniy	2
State scholarship named after Mirzo Ulughbek	4
State scholarship named after Navoiy	4

A YOUNG SCIENTIST INTERNSHIPS AT THE UNIVERSITY OF VIENNA

He had the opportunity to conduct research by working in modern laboratory equipment

RESULT:

The physical and chemical properties of more than 50 samples were studied.

SCIENTIFIC-PRACTICAL AND INTERNATIONAL CONFERENCES

1. "Current problems of contemporary linguistics, the issue of foreign language teaching methodology"
2. "History and modernity in scientific and educational relations between Uzbekistan and Russia"
3. "Issues of inclusion in personal development: current research and foresight projects"
4. "One way, one place. Opportunities and Challenges"
5. "Actual issues of student sports development"
6. "Information resources of the Springer Nature company for the integration of the science of Uzbekistan into the world scientific space"
7. "Actual problems of the physics of semiconductors and polymers"

THE DEFENSE OF PhD IN THE FOLLOWING SPECIALTIES:

#	Specialty	Dissertation defenses
1	Uzbek literature	1
2	Economic theory	1
3	Physical chemistry	1
4	Ecology	3
5	Economic and social geography	3
6	Geodesy - Cartography	3
7	Mathematical modeling. A set of numerical methods and programs	1
8	Hydrobiology	1
9	Social psychology. Ethnopsychology	9
10	Environmental protection and rational use of natural resources	2
11	Natural geography	1

ACHIEVE GENDER EQUALITY AND EMPOWER ALL WOMEN AND GIRLS

An independent researcher from the Faculty of Journalism received

HERTFORDSHIRE PRESS AWARDS

award from Britain.

JUNE 2, 2022

Professor of the Department of Soil Science, Faculty of Biology of NUU, Doctor of Biological Sciences

WAS ELECTED **AN ACADEMICIAN**

OF THE RUSSIAN ACADEMY OF SCIENCES

AN AUDITION

QUEEN OF THE FACULTY OF ECONOMICS

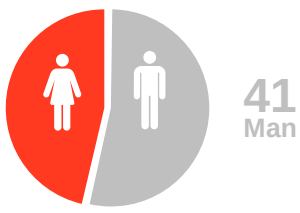
WAS HELD.

NUMBER OF WOMEN WORKING IN THE ADMINISTRATIVE BODIES OF THE UNIVERSITY

VICE-RECTOR FOR INTERNATIONAL RELATIONS

2 DEANS OF FACULTIES

81 DEPARTMENT HEADS, THEIR:



SCIENTIFIC-PRACTICAL AND INTERNATIONAL CONFERENCES

1. “Women scientists are active participants in reforms in Uzbekistan”
2. “Women biologists and soil scientists are active participants in reforms in New Uzbekistan”
3. “Family is a sacred place. Respect for a woman is the key to a happy family”
4. “Problems of violence against women and girls in Kazakhstan, Kyrgyzstan and Uzbekistan”
5. “The role of women in achieving the goals of sustainable development”

a scientific and practical conference was held on this subject. It states...

Total number of academic staff

10 000 +

The following part of them are women

60%

They conduct scientific research in the fields of philology, pedagogy, psychology, art, and culture.

6 TOZA SUV VA SANITARIYA

ENSURE AVAILABILITY AND SUSTAINABLE MANAGEMENT OF WATER AND SANITATION FOR ALL

Visit to the Indian Institute of Technology in Karakpur, India

Within the framework of the visit, the Department of "Water Resources" and the Faculty of Hydrometeorology of the NUU, as part of

THE INTERNATIONAL PRACTICAL PROJECT

No. Uzb-Ind-2021-89

took part at the workshop

"INDIA-UZBEKISTAN WATER RESOURCES MANAGEMENT"

ON JUNE 5, 2022

Visiting scientists from the republics of Germany and Tajikistan met with students of the Faculty of Hydrometeorology at the Chorbog practice base.

Field research work was carried out in the Piskom river basin as part of the practical project

"Development of the monitoring system of the mass balance of mountain glaciers in the conditions of global climate change and scenarios describing the future state of glaciers"

by the students of NUU

SCIENTIFIC PROJECT

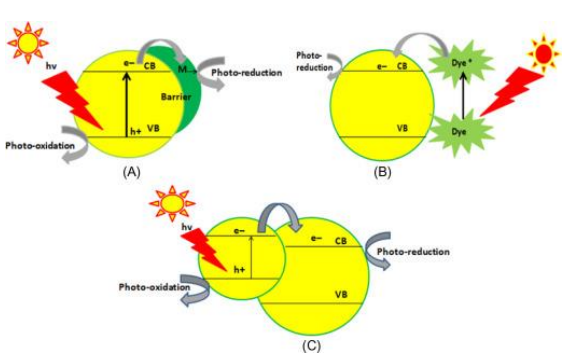
#	NAME	DATE	THE AIM OF THE PROJECT
1	Development of photocatalytic coatings based on metal oxides for water purification from organic pollution	01.12.2021 - 31.11.2023	This project will be aimed at solving the problem of creating a new generation of sorption / photocatalytic materials with a hierarchical structure based on metal oxides by studying the patterns and mechanisms of formation of nanostructures in various inorganic and organic composite materials.

7 ARZON VA TOZA ENERGIYA

ENSURE ACCESS TO AFFORDABLE, RELIABLE, SUSTAINABLE AND MODERN ENERGY FOR ALL

SCIENTIFIC PROJECT

#	NAME	DATE	THE AIM OF THE PROJECT
1	Hydrogen production by photocatalytic decomposition of water under the sunlight irradiation: synthesis of nanostructured photocatalysts and theoretical and experimental investigation of their properties	01.06.2021 – 31.05.2026	Within the framework of this project at the Faculty of Physics of the National University of Uzbekistan a scientific laboratory was created, For the initial period of the project implementation the planned general laboratory equipment was purchased. During the reporting period, 6 scientific instruments and about 30 necessary reagents were purchased. The samples based on ZnO and TiO2 defined in the project plan were synthesized and their properties were analyzed.



8 MUNOSIB ISH O'RINLARI VA IQTISODIY O'SISH

PROMOTE SUSTAINED, INCLUSIVE AND SUSTAINABLE ECONOMIC GROWTH, FULL AND PRODUCTIVE EMPLOYMENT AND DECENT WORK FOR ALL

"Digital transformation of economic systems: problems and prospects (ECOPROM-2022)"

POLYTECH
Peter the Great St.Petersburg Polytechnic University

was organized at the Faculty of Economics of the NUU in cooperation with the Institute of Higher Industrial Management of St. Petersburg Polytechnic University

A practical seminar was organized on the topic

"Prospects for the development of initiative budget processes in Uzbekistan"

In it, the projects included in the "Open budget" information portal based on the initiative of citizens were analyzed

"CAREER DAY"

The event was organized in cooperation with:
the Main Employment Department of Tashkent city, centers of assistance to the population of all districts of Tashkent, NUU and Tashkent State Technical University

PARTICIPANTS

100 + organizations, institutions, enterprises and representatives of large business entities

1500 + students

The head and teachers of the Department of Nuclear Physics of the Faculty of Physics participated in the regional seminar on the topic

"Results of the analysis of shortcomings in the field of nuclear physics training needs"

held at the International Atomic Energy Agency

9 SANOATLASHTIRISH, INNOVATSIYA VA INFRATUZILMA

BUILD RESILIENT INFRASTRUCTURE, PROMOTE INCLUSIVE AND SUSTAINABLE INDUSTRIALIZATION AND FOSTER INNOVATION

INNO week **"INNOWEEK.UZ-2022"**

International Week of Innovative Ideas also took an active part in the Faculty of Biology, Chemistry and Applied Mathematics and Intellectual Technologies

150+ scientific developments and innovative inventions were demonstrated by university students at the

"Exhibition of Scientific Production and Scientific Developments"

An introduction training to the

"LPS & PRODUCTION SOLUTIONS"

ESTABLISHED

81 laboratories with **152** equipment

SCIENTIFIC PROJECTS

#	NAME	DATE	THE AIM OF THE PROJECT
1	Development of technology for obtaining a new type of cation exchanger based on secondary raw materials of production	01.04.2020 - 31.03.2023	to create, develop and implement a new effective method for the neutralization of brine containing heavy metal ions used in the oil and gas industry on the basis of pyrolysis secondary raw materials

REDUCE INEQUALITY

IN 2022

On inclusive education, cooperation has been established with the

INSHEA

(Institut national supérieur formation et recherche - handicap et enseignements adaptés)

The students of NUU became the winners in the annual competition of traditional articles on the topic

“TOWARDS AN INCLUSIVE SOCIETY”

in cooperation with the Association of Disabled People of Uzbekistan and the “Social Work” department of the NUU

1 PLACE

NUU ranks first in the number of students with disabilities among higher education institutions in our country

420+

students with disabilities study at NUU

NVIDIA

In the main library of NUU, the **NVDA** (NonVisual Desktop Access) program for the blind has been installed on all computers

MAKE CITIES AND HUMAN SETTLEMENTS INCLUSIVE, SAFE, RESILIENT AND SUSTAINABLE

“QAYUM NASIRI CREATIVE CENTER”

of the Uzbek-Kazan joint faculty was opened

“A CULTURAL AND EDUCATIONAL CENTER NAMED AFTER MIRZO ULUGBEK”

was opened under Kazan Federal University

A cultural event was held with the participation of foreign professors and foreign students on the theme

“OUR LANGUAGE IS DIFFERENT, THE GOAL IS THE SAME: QUALITY EDUCATION IS THE BASIS OF DEVELOPMENT”

Professors and teachers from different countries such as France, Germany, USA, South Korea, Japan, Malaysia, China, Russian Federation, Kazakhstan, Kyrgyzstan, and Tajikistan are working at NUU.

AN INTERNATIONAL CONFERENCE

was held within the framework of the project

"3D DIGITAL SILK ROAD"

MAIN GOAL WAS

the promotion of Uzbek history, cultural heritage, art and culture, literature and national traditions to the world level by applying museums in Uzbekistan to the world level, at the same time, getting to know the educational system and libraries of foreign universities, sharing experience.

On the occasion of the 581st anniversary of **Alisher Navoi** and the 539th anniversary of **Zahiriddin Muhammad Babur** a special event was organized on the theme

“TWO GENIUSES OF A CENTURY”

12 MAS'ULIYATLI ISTE'MOL VA ISHLAB CHIQARISH

ENSURE SUSTAINABLE CONSUMPTION AND PRODUCTION PATTERNS

ANALYSIS OF SCIENTIFIC ARTICLES PUBLISHED IN 2022 IN SCIENTIFIC JOURNALS INDEXED IN THE SCOPUS DATABASE ON THE THIRTEENTH GOAL OF SUSTAINABLE DEVELOPMENT AT NUU

Publications

15	405	100
Number of publications	Total views	Citation

Number of university publications

1	0	5	3	6
2018	2019	2020	2021	2022

13 IQLIM O'ZGARISHIGA QARSHI KURASHISH

TAKE URGENT ACTION TO COMBAT CLIMATE CHANGE AND ITS IMPACTS

Mutual cooperation on COMBATING CLIMATE CHANGE was established with the

"Uzbekistan-France" friendship society and A.S.I.E. (International Solidarity and Education Organization), Tours and Orleans universities teachers in France

IN COOPERATION WITH THE

Departments of Biology and Ecology of the NUU and the Forestry Committee, a beautification fundraiser was organized under the slogan

"GREEN SPACE"

On the basis of the cooperation agreement concluded between

Leibniz Universität Hannover

within the framework of the academic exchange program, on **August 10-15, 2022**

2 professors **19** students

visited NUU to carry out scientific research, give a lecture, and conduct an educational-field practice at the "Chorvoq" educational-field practice base

In cooperation with the State Committee for Ecology and Environmental Protection of Uzbekistan, enterprising students of the NUU under the slogan

"ARAL SEA AND YOUTH"

they built a magnificent ecological garden on an area of **2 hectares**

1
educational and scientific polygon of NUU

1500 +
fruit and ornamental tree seedlings, and plantations of plants that protect the soil from erosion

An international scientific-practical conference was held on the topic

"Hydro-meteorological research in the context of climate change: current problems and their solutions"

The dean of the Faculty of Biology of the NUU held a master-class for the graduating 11th grade students of school No. 2 in Moynaq district of the **Republic of Karakalpakstan**

he gave scientific recommendations and information about the flora and fauna of the Aral and Aral Bay regions, the peculiarities of their soil, and the characteristics of their waters.

15 QURUQLIKDAGI EKOTIZIMLARINI ASRASH

PROTECT, RESTORE AND PROMOTE SUSTAINABLE USE OF TERRESTRIAL ECOSYSTEMS, SUSTAINABLY MANAGE FORESTS, COMBAT DESERTIFICATION, AND HALT AND REVERSE LAND DEGRADATION AND HALT BIODIVERSITY LOSS

Students of the Faculty of Geology and Geoinformation Systems are conducting training field practice in the fields of

“GEOPHYSICAL RESEARCH METHODS AND STRUCTURAL GEOLOGY AND GEOLOGICAL MAPPING”

Students of the Faculty of Geology and Geoinformation Systems are conducting training field practice in the fields of

AT AKSOQ OTA FIELD CAMP

Employees of the Environmental Protection Service of Shortan gas chemical complex are conducting scientific research in cooperation with scientists of the NUU

UNG Shurtan GKM

Both scientific and practical works are being carried out in the field of

“STUDY AND PROCESSING OF WASTE COLLECTED IN THE SEPARATOR OF THE SEWAGE TREATMENT PLANT”

A scientific-practical conference was held on the topic

“INTEGRATED MANAGEMENT AND RECLAMATION OF SOILS IN ENSURING FOOD SECURITY: NEW APPROACHES AND INNOVATIVE SOLUTIONS”

A republican scientific-practical conference was organized on the topic

“FORMATION OF ECOLOGICAL CULTURE: INSTITUTIONAL FOUNDATIONS AND ORGANIZATIONAL ISSUES”

16 TINCHLIK, ADOLAT VA SAMARALI BOSHQARUV

PROMOTE PEACEFUL AND INCLUSIVE SOCIETIES FOR SUSTAINABLE DEVELOPMENT, PROVIDE ACCESS TO JUSTICE FOR ALL AND BUILD EFFECTIVE, ACCOUNTABLE AND INCLUSIVE INSTITUTIONS AT ALL LEVELS

An international scientific-practical conference was held in cooperation with NUU and Yodju Technical Institute on the topic

“PRIORITY DIRECTIONS OF SUSTAINABLE DEVELOPMENT OF THE NATIONAL ECONOMY IN THE CONDITIONS OF INCREASING EXTERNAL THREATS”

PARTICIPANTS:

- Department of Insurance and Social Economy of the Financial University under the Government of the RF
- Institute of Management, Economics and Finance of the Kazan Federal University
- Tashkent State Transport University
- Center for Innovative Technologies
- Association for the Support of Scientific Research

The Crime Prevention Service of the Ministry of Internal Affairs of the Republic of Uzbekistan held an open dialogue on the topic

“CRIMINAL PREVENTION AMONG STUDENTS”

at the National University of Uzbekistan

A roundtable discussion was held on the topic

“THE ROLE OF THE PRINCIPLES OF TOLERANCE IN STRENGTHENING THE STABILITY OF INTERETHNIC RELATIONS IN UZBEKISTAN”

dedicated to the International Day of Tolerance on November 16

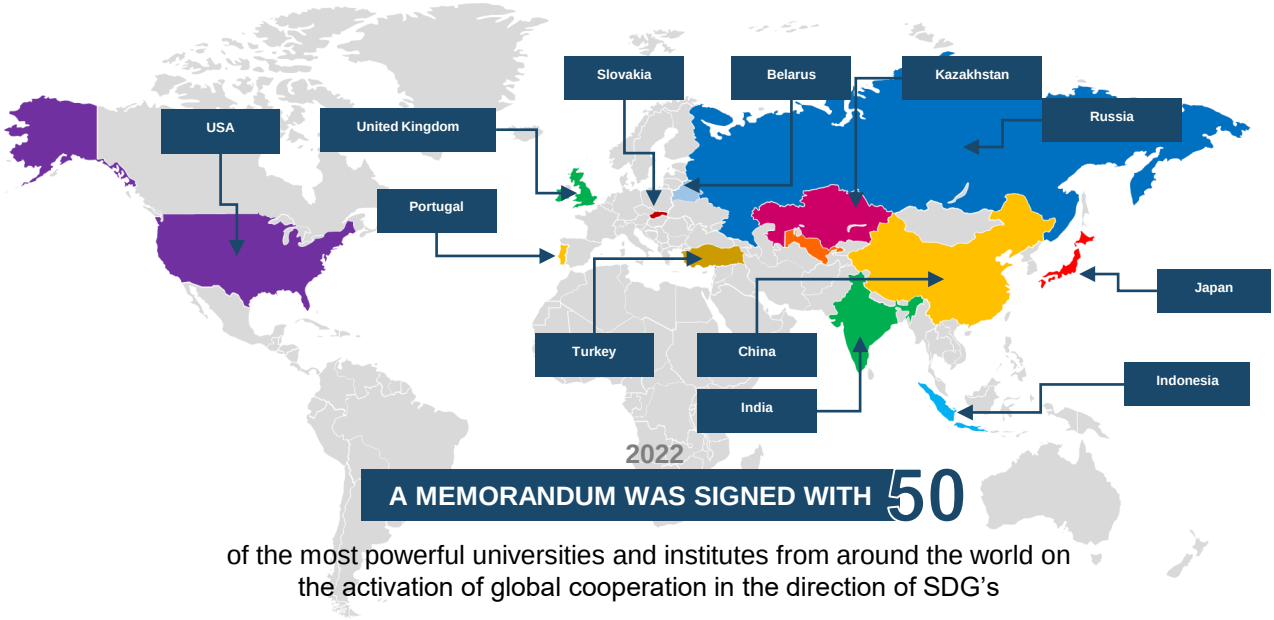
A spiritual and educational event was held at the university on the theme

“AGAINST IGNORANCE – ENLIGHTENMENT”

500 + students of the NUU, assistant deans and tutors took part

17 BARQAROR RIVOJLANISH YO'LIDA HAMKORLIK

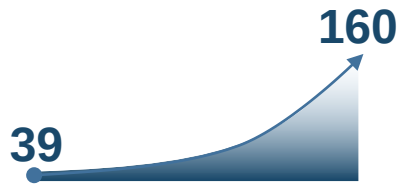
STRENGTHEN THE MEANS OF IMPLEMENTATION AND REVITALIZE THE GLOBAL PARTNERSHIP FOR SUSTAINABLE DEVELOPMENT



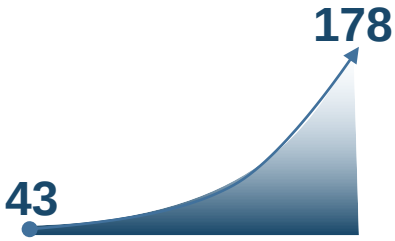
2022

A MEMORANDUM WAS SIGNED WITH 50

of the most powerful universities and institutes from around the world on the activation of global cooperation in the direction of SDG's



Scientific practice and training of professors and young researchers at partner universities



Inbound Student Exchange Mobility

The share of professors and teachers who give lectures at the most advanced foreign universities

THE FOREIGN DELEGATIONS
that visited the National University of Uzbekistan named after Mirzo Ulugbek are from the following universities

THE NATIONAL UNIVERSITY OF UZBEKISTAN

SUSTAINABLE DEVELOPMENT GOALS

REPORT 2022

SDG – 1

End poverty in all its forms everywhere

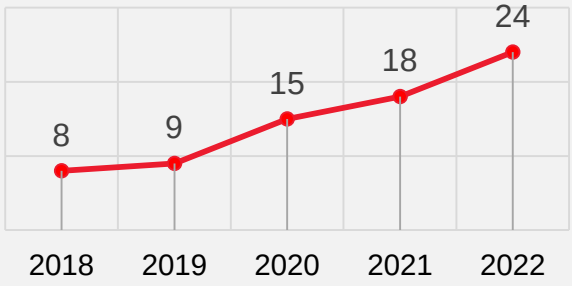
7
Number of Publications

78
Total views

2
Citation

Number of University Publications

The number of publication views



Most viewed articles

- Mechanisms of improving social protection of women: Risk indicators and statistics (In the context of gender-based violence), 2020, Narbaeva, T., Ganieva,M., Nurmatova, M., Latipova, N.
- Improvement of social partnership processes in Uzbekistan, 2022, Ganieva, M.,Abdukhalilov, A.,Latipova, N.,Nishanbaeva.
- “Social monitoring” as a component of the social protection system in the postinstitutional adaptation period, 2020, Zaitov E., Qayumov Q., Akhmedov Q.,Makhmudova M.

RESEARCH

At the National University of Uzbekistan, a number of activities were carried out in 2022 regarding **the elimination of all forms of poverty** of the Sustainable Development Goals. University professors and teachers have published articles in Scopus-based scientific journals and international scientific journals such as Web of Science with the aim of **ending all forms of poverty**. In particular, the Faculty of Social Sciences of the NUU conducted a study entitled **"Improving social partnership processes in Uzbekistan"**. In this work, the phenomenon of social partnership was studied as the main means of communication between state and civil society institutions. Also, the features of the formation of the system of social partnership in modern Uzbekistan were revealed, the main directions for improving the social partnership of its various subjects were determined. Based on sociological research, the problems and ways of improving the effectiveness of social communication between the subjects of the socio-economic life of the society were studied. The research focuses on the sociological development of problems related to social cooperation of subjects of education and social protection of the population in Uzbekistan.

Based on these studies, conclusions were made about the need for constructive cooperation of all state sectors in the process of social and political development in order to create favorable conditions for the development of social partnership and its various forms in our country. Also, the expert evaluations of the state authorities and management bodies, non-governmental non-profit organizations and the scientific community on the development of social partnership in Uzbekistan were comparatively analyzed, and recommendations were made to improve the practice of applying the law and normative legal documents in the field of social partnership.

Another research is **“Social monitoring” as a component of the social protection system in the post-institutional adaptation period**, in which the social protection system “social monitoring” is analyzed as a component in the post-institutional period. Institutions engaged in the education of young people who have graduated from the institution are thoroughly researched to establish their mutual relations with production enterprises and organizations, and to ensure their professional practice in the same organizations.

Studying social support for the disadvantaged

One of the tasks of modern society is to ensure that men and women with disabilities have the same rights and obligations as other members of society. In all countries of the world, there are barriers that prevent people with disabilities from fully exercising their rights and freedoms and make it difficult for them to participate in public life. In order to identify these obstacles, a study was conducted at the National University of Uzbekistan entitled "Barriers to disability-inclusive employment in Uzbekistan: A pilot qualitative study of disabled people's lived experiences". It is a study on the barriers to employment of people with disabilities in the Republic of Uzbekistan. In recent years, several works have been carried out to protect the rights of disabled people in Uzbekistan. But there are obstacles regarding their right to work and protection from unemployment. This study is aimed at identifying the obstacles they face and finding solutions to them. The results of this empirical-qualitative research showed that there is a need to take necessary measures to remove barriers for people with disabilities by providing equal opportunities in various social systems of society, such as providing services, work, information and transportation.

Social activity

The National University of Uzbekistan is among the donors to the schools of our republic

Since 2020, NUU has been regularly providing financial and technical assistance to schools located in our Republic. In 2022, the management of the University provides more than 10 computers and educational kits for primary classes to the general education school №12 in the Sardoba district of the Syrdarya region. The educational kit includes notebooks, pencils, things for the technology classes, drawing, pencil cases, etc. NUU also contributes to the organization of distance education. In particular, 55 tablets were prepared by the NUU and handed over to high school students from low-income families of our republic.

Students and Learning Environment Social support programs at the NUU

The NUU implements the state social scholarship program aimed at supporting socially needy students (for example, women, orphans, students with disabilities, students who lost both or one parent during their studies). In addition, the NUU provides financial support to members of the Student Union, which any student of the NUU can become a member of Financial aid includes supporting students in need with one-time payments, reimbursement for public transport travel costs and other financial assistance. At the same time, girls studying in low-income, disadvantaged families will be provided with one-year financial support in the amount of up to 6 times the minimum wage. This shows that the university supports students in all aspects.

For those who are studying at the university and want to work on themselves, it is possible to freely use the central library of the university and participate in seminars and trainings in various fields.

In order to ensure the implementation of the decision of the rector of the National University of Uzbekistan 455 dated September 23, 2022, in the 2022 academic year, the rector of our university and the regional authorities paid the contract sums of more than **170 female students** by the decision of the council.

The NUU implements a temporary employment program for students

In order to provide employment to students, a column has been created on the official website of the official university where vacancies are announced. It shows job vacancies and monthly salaries for students throughout the republic. In 2022, the university has provided 300 vacancies for student employment.

TUITION FEES OF

170+

female students were covered by the university

Underprivileged girls studying at the NUU are provided with

1 YEAR

financial support in the amount of up to **6 times** the minimum wage

SDG – 2

End hunger, achieve food security and improved nutrition and promote sustainable agriculture

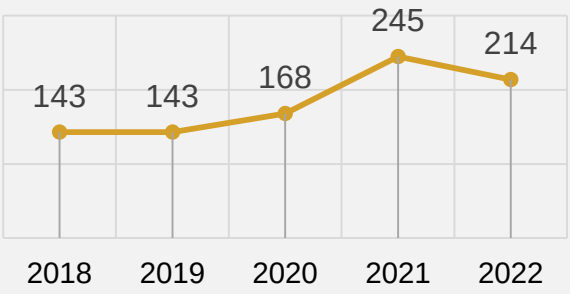
32
Number of Publications

913
Total views

513
Citation

Number of University Publications

The number of publication views



Most viewed articles

- Endophytic bacteria improve plant growth, symbiotic performance of chickpea (Cicer arietinum L.) and induce suppression of root rot caused by Fusarium solani under salt stress, 2017, Egamberdieva D., Wirth, Stephan J.,Vyacheslav, V.,Hashem, A. Abd Allah, Elsayed F.
- Salt-Tolerant Plant Growth Promoting Rhizobacteria for Enhancing Crop Productivity of Saline Soils, 2019, Egamberdieva, D., Bellingrath-K., Sonoko Dorotheab, Mishra, J., Arora, Naveen K.
- Challenges for the sustainable use of water and land resources under a changing climate and increasing salinization in the Jizzakh irrigation zone of Uzbekistan,2020, Kulmatov, R., Mirzaev, J., Abuduwaili, J.,Karimov, B.

RESEARCH

At the National University of Uzbekistan, **more than 30 studies have been carried out on the goal of sustainable development to end hunger, ensure food security and improve nutrition, and contribute to the sustainable development of agriculture**. The main part of them is aimed at improving the fertility of the land, providing the population with food, reducing or preventing salinity in plants. In this regard, a study"Endophytic bacteria improve plant growth, symbiotic performance of chickpea (Cicer arietinum L.) and induce suppression of root rot caused by Fusarium solani under salt stress" was conducted at the university. It is about the study of salinity in plants. Salinity causes disturbance in symbiotic performance of plants, increases susceptibility of plants to soil-borne pathogens. Endophytic bacteria are an essential determinant of cross-tolerance to biotic and abiotic stresses in plants.

The aim of this study was to isolate non–rhizobial endophytic bacteria from the root nodules of chickpea (Cicer arietinum L.) and to assess their ability to improve plant growth and symbiotic performance, and to control root rot in chickpea under saline soil conditions. A total of 40 bacterial isolates from internal root tissues of chickpea grown in salinated soil were isolated. Four bacterial isolates, namely Bacillus cereus NUU1, Achromobacter xylosoxidans NUU2, Bacillus thuringiensis NUU3, and Bacillus subtilis NUU4 colonizing root tissue demonstrated plant beneficial traits and/or antagonistic activity against F. solani and thus were characterized in more detail. The strain B. subtilis NUU4 proved significant plant growth promotion capabilities, improved symbiotic performance of host plant with rhizobia, and promoted yield under saline soil as compared to untreated control plants under field conditions. A combined inoculation of chickpea with M. ciceri IC53 and B. subtilis NUU4 decreased H2O2 concentrations and increased proline contents compared to the un-inoculated plants indicating an alleviation of adverse effects of salt stress. Furthermore, the bacterial isolate was capable to reduce the infection rate of root rot in chickpea caused by F. solani. This is the first report of F. solani causing root rot of chickpea in a salinated soil of Uzbekistan. Our findings demonstrated that the endophytic B. subtilis strain NUU4 provides high potentials as a stimulator for plant growth and as biological control agent of chickpea root rot under saline soil conditions. These multiple relationships could provide promising practical approaches to increase the productivity of legumes under salt stress.

The National University of Uzbekistan together with the Central Asian Research Center for Ecology and Environmental Protection conducted the study "Challenges for the sustainable use of water and land resources under a changing climate and increasing salinization in the Jizzakh irrigation zone of Uzbekistan". Jizzakh Province in Uzbekistan is one of the largest irrigated areas in Central Asia without natural drainage. In combination with aridity, climate change and extensive irrigation practices, this has led to the widespread salinization of agricultural land. The aim of this study was to identify opportunities to improve the reclamation status of the irrigated area and how best to effectively use the water resources in Jizzakh Province based on investigations conducted between 1995 and 2016.

A database of field measurements of groundwater levels, mineralization and soil salinity conducted by the provincial Hydro-Geological Reclamation Expeditions was used in the study. The total groundwater mineralization was determined using a portable electric conductometer (Progress 1T) and the chloride concentration was determined using the Mohr method. The soil salinity analyses were conducted by applying two different methods: (1) the extraction and assessment of the soluble salt content, and (2) using an SM-138 conductivity sensor applied to a 1:1 mixture of soil sample and water. The analyses of the monitoring results and the salt balance in the "irrigation water-soil-drainage water" system clearly demonstrated that the condition of the irrigated land in the province was not significantly improved. Under these conditions, the stability of crop yields is achieved mainly through the use of large volumes of fertilizer.

However, excess amounts of mineral fertilizers can also cause the salinization of soils. The average groundwater salinization value in most of the irrigated land (75.3%) fluctuated between 1.1 and 5.0 g/L, while the values were less than 1.0 g/L in 13.1% of the land and in the range of 5.1–10.0 g/L in 10.5% of the land. During the period of 1995–2016 the salinization level of the irrigated land in Jizzakh Province increased slightly and the area could be divided into the following classes: no salinity (17.7% of the total area), low salinity (51.3%), moderate salinity (29.0%), and high salinity (2.0%). Detailed studies of the salt balance in irrigated land, the impact of climate change, increased fertilizer use, and repeated remediation leaching on the groundwater level and mineralization should be conducted in the future, due to the possibility of accelerated salinization, fertility decline, and reduced yields of agricultural crops.

Research is being carried out in cooperation with foreign universities

In 2019, in cooperation with the Xinjiang Institute of Ecology and Geography of China, the research"Salt-Tolerant Plant Growth Promoting Rhizobacteria for Enhancing Crop Productivity of Saline Soils" was conducted. The study found that soil salinity has become a major problem for global food security. According to estimates, about 62 million hectares, or 20 percent of irrigated land worldwide, are currently affected by salinity. The excessive accumulation of soluble salt in cultivated areas directly affects the productivity of crops. Absorption of a large amount of salt prolongs various physiological and metabolic processes of plants, and even adversely affects their survival. Traditional methods of recultivating saline soils, such as soil cleaning, leaching, or addition of additives (eg, gypsum, CaCl2, etc.), have had little effect. But it had a negative impact on agro-ecosystems. Therefore, the development of sustainable methods of increasing the productivity of saline soil without harming the environment was studied in the research.

Social activity

Employees and students of the National University of Uzbekistan organize various charity events every year. One of these events is the charity event **«Shirin ehson» va «Saxovatda halovat»**. Necessary tools were delivered to the children of boarding school No. 1. In addition, charity food distribution events are carried out in student residences and on the university campus.

The action **« Savob tola yuraklar »** is regularly held on the initiative of students and young people.

SDG – 1

End poverty in all its forms everywhere

47
Number of Publications

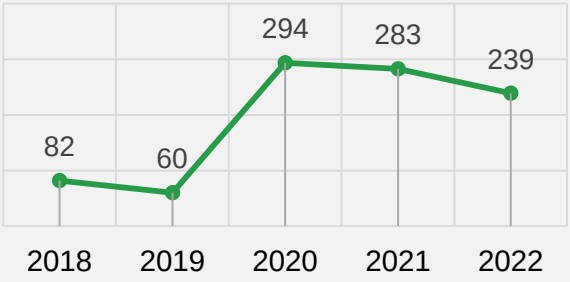
958
Total views

137
Citation

Number of University Publications

2018	2019	2020	2021	2022
3	2	13	14	14

The number of publication views



Most viewed articles

- Research methodology and its organization of motivational valuable characteristics of the relationship with treatment of patients with diabetes, 2020, Nozimakhona, K., Mamatova N., Ilkhamova, D.
- Contact Tracing of Infectious Diseases Using Wi-Fi Signals and Machine Learning Classification, 2020, Narzullaev, A., Muminov, Z.
- Applying SEIR model without vaccination for COVID-19 in case of the United States, Russia, the United Kingdom, Brazil, France, and India, 2021, Al-Raeei M., El-Daher, M., Solieva, O.

RESEARCH

At the National University of Uzbekistan, about **50** articles on the purpose of **ensuring a healthy lifestyle and promoting the well-being of people of all ages** have been published in scientific journals in the Scopus database. He did a number of works in this regard at the university. University employees conducted studies on the origin of pathological processes occurring in the population and their prevention. In particular, the purpose of the study "Study of nozogeographic situation and its study on the basis of sociological survey" is to develop scientific and practical recommendations for improving the nosogeographic situation by evaluating the impact of the nosogeographic situation on the territorial structure of population diseases and pathological processes in Samarkand and Navoi regions. Analysis of pathological processes related to the disease of the population of Samarkand, Navoi regions and their districts; Identification and assessment of natural, socio-economic geographical factors and non-geographical situation affecting the health of the population in the regions; Medical geographical analysis of some infectious diseases and their characteristics among the population of the regions; It is to determine the main problems in the nosogeographic situation of the regions, the prognosis of diseases among the population. As a result of the research, the group and types of diseases occurring in Khatirchi, Qiziltepa, Bulung'ur regions of the region were identified and the methods of their prevention were explained to the population. The condition of the hospital was assessed based on the sociological survey method.

In recent years, the number of patients with diabetes has been increasing all over the world. Many scientists are conducting research in this regard. In particular, the National University of Uzbekistan is conducting scientific research on the origin of diabetes, its prevention, and its dangerous aspects. In the study"TNF-α gene G308A polymorphism: Frequency in patients with type 2 diabetes mellitus" , a scientific study was conducted on type 2 diabetes. The purpose of the study is to measure the concentration of TNF-a in the serum of Uzbek patients with type 2 diabetes and to determine the frequency of tumor necrosis factor-alpha (TNF-a) gene G308A polymorphism. To determine this, healthy and Uzbek patients with type 2 diabetes mellitus are monitored. As a result, fasting blood glucose and glycated hemoglobin (HbA1c) were 2.7 and 1.6 times higher in the diabetic group, respectively (both $p<0.01$). In the diabetic group, HDL

cholesterol was lower, while LDL cholesterol, total cholesterol, and triglycerides were higher. There was a significant difference between serum TNF-α concentrations in subjects with and without DM. As for the TNF-a gene G308A polymorphism in the study sample, it was mainly expressed by the GG homozygous genotype, which was recorded in patients without diabetes (90.2%) and type 2 DM (83.3%). GA heterozygous genotype occurs in 9.8% and 16.7% of non-diabetic and diabetic subjects, respectively. No pathological AA homozygous genotype was found in the study, neither among diabetics nor in controls. There were no significant differences in frequencies of alleles and genotypes of TNFα gene G308A polymorphism. The frequency of A allele and GA genotype was significantly higher in diabetic patients than in controls. In conclusion, compared with non-diabetic subjects with diabetes, patients with type 2 diabetes had higher serum concentrations of TNF-α. However, the association of TNF-α gene A allele and GA genotype with increased risk of DM2 in this subgroup was not significant.

Social activity

Various sports competitions, free medical examinations and various seminars are organized to further improve the health of university employees and students, and their passion for sports. Everyone who wants to be healthy should do sports. The importance of physical education was clearly felt during the pandemic. Healthy people have had little or no exposure to the virus. The recovery process was also easy. Among athletes, there were very few cases of coronavirus, and there were no losses.

For this purpose, students of the NUU actively participate not only in sports competitions held in Uzbekistan, but also in competitions held in the world. For example, **on February 5-6, 2022**, a prestigious tournament was held in the city of Fujairah, United Arab Emirates, in the WT discipline, which belongs to the Olympic family of taekwondo. Ulugbek Rashitov, Jasurbek Jaysunov and Svetlana Osipova, students of of NUU, took part in these tournaments and won gold medals.

On March 24-27, 2022, the Asian Paracanoe Championship was held in Pattaya, Thailand. Azizbek Abdulkhabibov, a student of the 4th stage of the Faculty of Taekwondo and Sports Activities of NUU, took the 2nd place and won a silver medal. It also won a license for the Para-Asian Games to be held in August 2022.

Attention to sports can be seen from the achievements of university students. Among them, taekwondo players of our country won 3 bronze medals at the 24th Deaflympics held in **May 2022** in Casillas do Sul, Brazil. Among them, Dilbar Tojiboyeva 49 kg, Maftuna Abdiyusupova +67 kg, 2nd year students of Taekwondo and sports activities faculty of NUU became the bronze medalists.

At the 27th Sharjah International Chess Championship in the UAE

the student of NUU Nodirbek Yakubboyev won the

1st place

IN THE BLITZ CATEGORY OF CHESS

On February 12, 2022, Yakubbayeva Nilufar, a 3rd-level student of the NUU, Department of Applied Mathematics and Informatics, women at the international meeting "FIDE Congress 2021" held by the International Chess Federation (FIDE) was awarded the title of International Grandmaster (Woman Grandmaster). Nilufar Yakubbayeva is a 10-time Uzbekistan, 2-time Asian champion and world championships winner, a member of the Uzbekistan women's national team.

SDG – 4

Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

19
Number of Publications

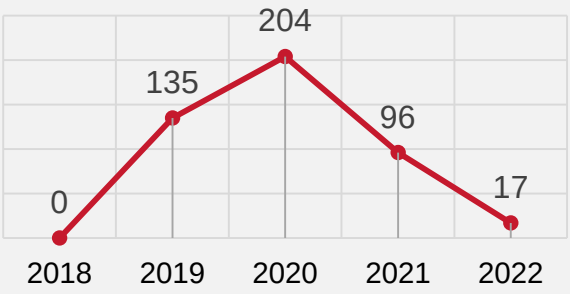
452
Total views

17
Citation

Number of University Publications

2018	2019	2020	2021	2022
0	3	9	5	2

The number of publication views



Most viewed articles

- Using information technology tools in mathematics lessons for teaching future teachers, 2020, Makhmudova, D.
- Implementation of modern information communication technologies (Ict) in higher education sector: International experience and the example of Uzbekistan,2019, Allayarova, S.
- National University of Uzbekistan on the Way to the Smart University, 2021, Karimkhodjaev A., Nishonov, M.

RESEARCH

More than **20** articles have been published in Scopus scientific journals on the goal of **providing inclusive, equal and quality education for all and expanding the opportunity for continuous education for all** at the National University of Uzbekistan. A number of works have been carried out in this regard at the university. In particular, the research **"Modern pedagogical methods in effective organization of lessons"** is about introducing new technologies into the educational process and improving the quality of education. Technological development of the educational process means the organization of an effective didactic process in accordance with the established educational objectives. The development of professional and pedagogical skills of teachers requires the organization of their educational and cognitive activities on the basis of a technological approach. For this purpose, it is used in the design of pedagogical technologies related to foreign didactic. These projects are tested by pedagogical experience - the dynamics of the development of pedagogical abilities of teachers are studied and conclusions are made. The National Training Program emphasizes the implementation of a mechanism for the implementation of research results in education through the establishment of experimental sites for the introduction of "pedagogical technologies". The scientific solution of this social order requires the transformation of the professional and pedagogical activity of school teachers and the development of personal qualities into a purposeful, consistent and continuous process.

National Personnel Training is an economically viable, short-term, effective form of teacher professional development as part of continuing education. This type of education, of course, has its own pedagogical system, and the study of it, to ensure its mobility, to determine the conditions for improving the effectiveness of lessons on the basis of advanced pedagogical technology is the current research object of pedagogy. Therefore, the essence of this research is to improve the quality of lessons using the advanced pedagogical technologies Uzbekistan and their effective use in the education of the younger generation on the basis of an integrated approach.

Teaching with modern technologies is very important nowadays. For this purpose, a study entitled **"Implementation of modern informational communication technologies (Ict) in higher education sector: International experience and the example of Uzbekistan"** was conducted. Information and communication technologies are a powerful tool for successfully conducting quality education in higher education institutions. Although a number of countries that have fully realized its benefits have developed the use of ICT in the field of higher education, Uzbekistan may still face some problems in this regard. Therefore, the purpose of this study is the use and adoption of ICT by higher education institutions in Uzbekistan is to contribute to the growing body of evidence on The article critically analyzes the current perceptions of students and teachers of 23 higher education institutions in Uzbekistan about the use of ICT and provides some recommendations for improvement by studying international experience.

Joint educational programs

Several activities are being carried out at the university to improve students' knowledge. In particular, joint educational programs have been opened in cooperation with Holon Institute of Technologies and Kazan Federal University. In cooperation with Israel's Holon Institute of Technology, joint education in the fields of Computer Science, Technology Management, and Engineering Mathematics has been launched. In cooperation with Kazan Federal University, joint education was launched in the fields of Geodesy and geoinformatics and Psychology (by types of activities). The first graduates of the joint education program of Kazan Federal University received a double diploma in June 2022, i.e. diplomas of the National University of Uzbekistan and Kazan Federal University. Co-educational programs show that the level of education of students increases.

Training

Professors and students of the NUU are regularly sent abroad for training to a number of countries, such as France, Austria, Italy, Russia, Kazakhstan, Israel, Belarus, Ukraine. In January 2022, at the University of Vienna, Austria, the professor of the NUU further increased his knowledge in the field of Chemistry. In addition, at Kharkov National University named after Karazin, professors and students of the university acquired the skills of working with modern laboratory equipment in the field of chemistry. They worked on modern laboratory equipment, X-ray structure, X-ray fluorescence, IR and chromatographic spectroscopy, gas chromatography and other instruments and studied modern quantum-chemical calculation methods.

Conferences

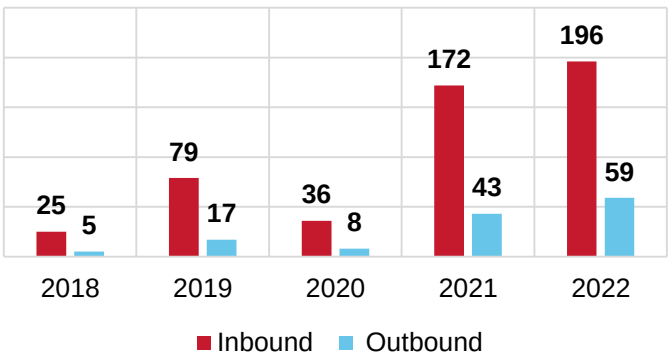
Conferences, congresses, seminars and trainings are organized in various directions at the NUU. They are mainly about the difficulties faced by young people and teachers in education and their solutions.

2022

50+ scientific-practical congresses and international conferences were held in all directions.

In particular, the republican scientific-practical conference with the participation of foreign scientists on the topic "Current problems of the physics of semiconductors and polymers", the international scientific-practical conference on the topic "Current problems of modern linguistics, the issue of foreign language teaching methodology", in cooperation with Uskudar University of Turkey.

Academic mobility



SDG – 5

Achieve gender equality and empower all women and girls

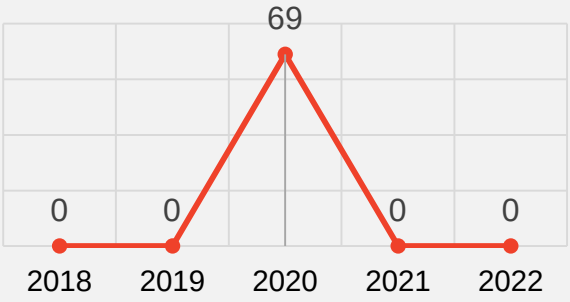
3
Number of Publications

69
Total views

0
Citation

Number of University Publications

The number of publication views



Most viewed articles

- The role of civil society institutions in the development of youth political culture, 2020, Khojiev.T.,Holmahmatov, A.,Toshov, K.Tursunov, A., Mansurov, U.
- Mechanisms of improving social protection of women: Risk indicators and statistics (In the context of gender-based violence), 2020, Narbaeva T., Ganieva M., Nurmatova M., Latipova N., Ziyaeva, H.
- The actuality of the gender aspect of the manager's constructive interaction in the conflicting situation, 2020, Mukhamedova D., Abdullajanova D.

RESEARCH

A number of works on gender equality have been carried out at the National University of Uzbekistan. Articles have been published in scientific journals on the basis of Scopus, which are aimed at ensuring women's rights and freedoms. In particular, the research **"The actuality of the gender aspect of the manager's constructive interaction in the conflicting situation"** is dedicated to the study of the gender characteristics of managers who have constructive interaction in a conflicting situation, in addition, the value-motivational, management of female managers presented and explained the evidence that there are some differences in relation to male managers in emotional and volitional areas. These differences are statistically significant and can be interpreted as a gender aspect of constructive cooperation in a conflict situation. In this conflict situation, women managers who have a constructive interaction have a more stable focus on the team, communicate, establish a good interpersonal environment, which is accompanied by restraint and prudence, as well as self-demanding during professional activity. In the process of management, women often create external and internal incentives for subordinates to work actively, and maintain an appearance that corresponds to the status of a leader. The skills of business communication, optimal distribution of functions among subordinates protection and respect for them are also more developed. Today, the study of the gender aspect in management activities in Uzbekistan is relevant. The gender aspect is an important component of the formation of a well-rounded society.

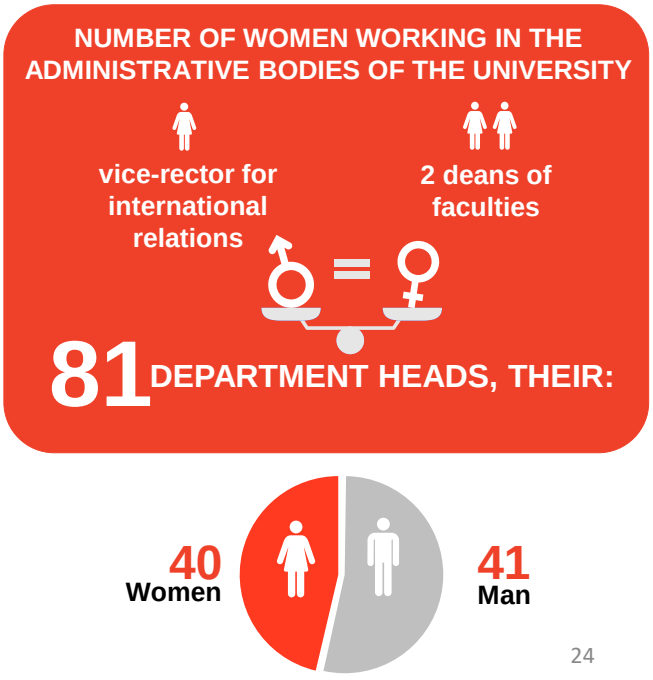
The study **"The role of civil society institutions in the development of youth political culture"** was conducted. Democracy and political culture are one of the signs and criteria of modern social life. At a time when Uzbekistan is on the way to building a civil society and a democratic legal state, the fundamental changes being implemented in our society are essentially aimed at democratizing social life, realizing the freedoms, rights and aspirations of citizens for a prosperous life. The five political parties operating in Uzbekistan include about 10,000 non-governmental non-profit organizations, more than 20,000 associations and clubs of social and cultural amateurs, human rights institutions (for example, Ombudsman), associations (Republican Union of Entrepreneurs and Businesswomen), about a 1000 newspapers and magazines indicate the level of political culture in our country. At the new stage of Uzbekistan's development, hundreds of new civil society institutions representing various interests of the population were established, and today they protect the interests of citizens in real life. In addition, the government adopted a number of legal documents in the field of supporting civil society institutions, institutional changes were implemented.

In addition, the university staff conducted the research **“Mechanisms of improving social protection of women: Risk indicators and statistics (In the context of gender-based violence)”**. In international practice, there are important quantitative and qualitative standards for providing assistance to victims of domestic violence. The most progressive are the recommendations of the European Parliament, the Council of Europe Working Group on Combating Violence against Women, and the European Network of Women Against Violence Non-Governmental Organizations (WAVE). Abroad, public organizations have become interested in developing and implementing the principles and standards of quality of social services. Compliance with such standards will ensure the quality of assistance to victims in order to prevent further acts of violence against women and their children. Victims of domestic violence are rarely willing to talk openly about their problem. Often, they experience fear, guilt, shame and stop themselves from seeking help. Government agencies often do not have trained specialists because of the high staff turnover and are overloaded with other responsibilities. And this negatively affects the problem of gender- based violence. This article addresses a number of issues on gender and domestic violence, social protection, risk indicators, asylum and how to improve social protection mechanisms, including the problems of rehabilitation of victims of violence.

Social activity

In Uzbekistan, a number of efforts are being made to ensure gender equality and ensure the rights and interests of women. In particular, within the framework of the Action Strategy, priority measures aimed at improving the legislation on women's rights, strengthening the institutional foundations of women's protection, and increasing the population's awareness of gender equality are defined and implemented consistently. Various events are held at the National University of Uzbekistan in order to increase the scientific potential of women. At the National University of Uzbekistan, in cooperation with the Women's Council, the Faculty of Economics, and the Department of Women's Political Activity, Position and Status of UzLiDeP Tashkent City Council, in the field of ensuring equal rights and opportunities for women and men in our country. A spiritual and educational event was held on the topic of **"Issues and problems of gender equality in the new Uzbekistan"** and the progress made in terms of gender equality, shortcomings in this area and ways to eliminate these shortcomings were discussed.

In addition, **in March 2022**, in cooperation with the State Committee for Family and Women of the Republic of Uzbekistan, the Ministry of Higher and Secondary Special Education of the Republic of Uzbekistan, and the Faculty of Biology of the National University of Uzbekistan, a scientific-practical conference was held on the topic **"Women biologists and geologists are active participants in reforms in the new Uzbekistan."**



SDG – 6

Ensure availability and sustainable management of water and sanitation for all

33
Number of Publications

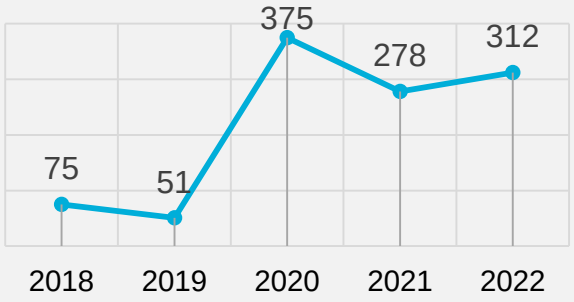
1091
Total views

242
Citation

Number of University Publications

2018	2019	2020	2021	2022
2	2	7	10	12

The number of publication views



Most viewed articles

- SnO2@ZnS photocatalyst with enhanced photocatalytic activity for the degradation of selected pharmaceuticals and personal care products in model wastewater, 2020, Hojamberdiev M., Czech B., Göktaş A., Yubuta K., Kadirova Z.
- Polyvinyl chloride modifications, properties, and applications: Review, 2022, Lieberzeit P., Bekchanov D.,Mukhamediev M.
- Detoxifying SARS-CoV-2 antiviral drugs from model and real wastewaters by industrial waste-derived multiphase photocatalysts, 2022, Hojamberdiev M.,Czech B., Wasilewska A., Boguszewska C.,Yubuta K.,Wagata H., Daminova Sh.,Kadirova Z.,Vargas R.

RESEARCH

At the National University of Uzbekistan, about **40 articles have been published in Scopus scientific journals on the provision of access to safe water supplies and sanitary facilities for all.** The use of safe water, sanitation and hygiene is the most basic need for human health and well-being. Without a quadrupling of development, billions of people will not have access to these basic services in 2030. The demand for water is increasing due to the rapid growth of the population, urbanization, and the increasing need for water in the agricultural, industrial, and energy sectors. For this purpose, research on topic **"Territorial structure of agriculture development in Uzbekistan in terms of economical geography"** was conducted. The article deals with the geographical study of agricultural development in Uzbekistan, the legal framework related to agricultural development in the country during independence, the emergence of permanent settlement based on irrigated agriculture, the importance of scientific development, and agricultural development. Uzbekistan since ancient times. Historical materials are analyzed. In recent years, analyzes have been undertaken to improve the territorial structure of agricultural sectors in the Jizzakh region. It focuses on the natural conditions, climatic resources of Jizzakh region, its ancient and mountainous areas, on rain-fed grain and horticultural areas, cotton growing areas, agro-climatic resources and its regional differences. Some features related to the agricultural location of the Jizzakh region include: wide opportunities for agricultural productivity in mountainous and foothill areas; Farming in steppe regions is largely due to the size of the fields and the need to deal with natural factors that limit productivity.

RESEARCH IS BEING CARRIED OUT IN COOPERATION WITH UNIVERSITIES

"SnO_2@ZnS photocatalyst with enhanced photocatalytic activity for the degradation of selected pharmaceuticals and personal care products in model wastewater" was conducted in cooperation with Berlin University of Germany and Tohoku University of Japan. In it, scientific work was conducted on pollutants in wastewater. Pharmaceuticals and personal care products (PPCPs) are a new class of water contaminants that need to be effectively removed. In this work, SnO2 is involved in enhancing the photocatalytic activity of ZnS-bearing waste for the photodegradation of selected PPCPs.

The SnO2@ZnS photocatalysts with various SnO2:ZnS ratios were synthesized by a one-step hydrothermal route. The results of physicochemical characterization reveal the successful formation of SnO2@ZnS photocatalyst. The photocatalytic activities of SnO2@ZnS photocatalysts are evaluated for the degradation of selected PPCPs: metoprolol (beta-blocker), carbamazepine (antiepileptic), acetaminophen (nonsteroidal anti-inflammatory drug), and triclosan (antimicrobial). As a result, **70% of acetaminophen, 40% of carbamazepine, 67% of metoprolol, and 40% of triclosan** are degraded by SnO2@ZnS photocatalysts. Such discrepancy in the photocatalytic degradation of PPCPs is stemmed from different physicochemical properties of the photocatalysts, chemical structures of PPCPs, and interactions between the PPCP molecules and the photocatalyst surface. To gain more insights into the different photocatalytic removal efficiencies of PPCPs, the adsorption affinities of PPCPs and water molecules to the predominant crystal planes of SnO2 (011) and ZnS (111) are computationally estimated. It is found that hydrated PPCPs are preferably adsorbed on the surface of SnO2 rather than on the surface of ZnS, and the SnO2@ZnS photocatalysts show a better adsorption affinity to PPCPs than individual SnO2 or ZnS. This study demonstrates a simple route to develop low-cost photocatalysts for the efficient removal of PPCPs by utilizing zinc sulfide-bearing industrial waste.

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In addition, the research **"Agricultural impacts drive longitudinal variations of riverine water quality of the Aral Sea basin (Amu Darya and Syr Darya Rivers), Central Asia"** was conducted in cooperation with the University of the Chinese Academy of Sciences and the Helmholtz Ecological Research Center of Germany. River ecosystems are under increasing stress in the background of global change and ever-growing anthropogenic impacts in Central Asia. However, available water quality data in this region are insufficient for a reliable assessment of the current status, which come as no surprise that the limited knowledge of regulating processes for further prediction of solute variations hinders the development of sustainable management strategies. Here, we analyzed a dataset of various water quality variables from two sampling campaigns in 2019 in the catchments of two major rivers in Central Asia - the Amu Darya and Syr Darya Rivers. Our results suggested high spatial heterogeneity of salinity and major ion components along the longitudinal directions in both river catchments, pointing to an increasing influence of human activities toward downstream areas. We linked the modeling outputs from the global nutrient model (IMAGE-GNM) to riverine nutrients to elucidate the effect of different natural and anthropogenic sources in dictating the longitudinal variations of the riverine nutrient concentrations (N and P). Diffuse nutrient loadings dominated the export flux into the rivers, whereas leaching and surface runoff constituted the major fractions for N and P, respectively. Discharge of agricultural irrigation water into the rivers was the major cause of the increases in nutrients and salinity. Given that the conditions in Central Asia are highly susceptible to climate change, our findings call for more efforts to establish holistic management of water quality.

Social activity

In recent years, special attention has been paid to all fields in our country, including the field of hydrometeorology. Students and professors of the Faculty of Hydrometeorology of the NUU have been conducting a number of outstanding research works in recent years.

Various practical exercises are conducted at the National University of Uzbekistan throughout the year.

Visit to the Indian Institute of Technology in Karakpur, India

Within the framework of the visit, the Department of "Water Resources" and the Faculty of Hydrometeorology of the NUU, as part of

THE INTERNATIONAL PRACTICAL PROJECT
No. Uzb-Ind-2021-89

took part at the workshop

"INDIA-UZBEKISTAN WATER RESOURCES MANAGEMENT"

7 AFFORDABLE AND CLEAN ENERGY

SDG – 7

Ensure access to affordable, reliable, sustainable and modern energy

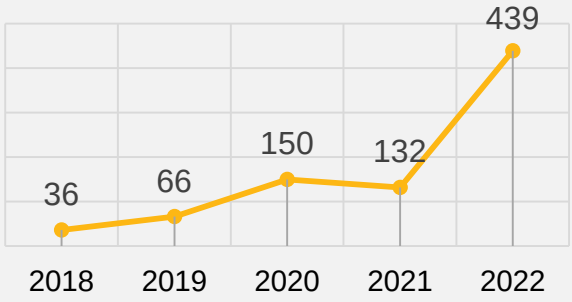
37
Number of Publications

822
Total views

153
Citation

Number of University Publications

The number of publication views



Most viewed articles

- Green β-cyclodextrin-based corrosion inhibitors: Recent developments, innovations and future opportunities, 2022, Berdimurodov E., Eliboyev I., Berdimuradov K.,Kholikov A., Akbarov, K., Dagdag O., Rbaa M., El Ibrahimi B., Verma D. K., Haldhar R., Arrousse, N.
- Electrifying Schiff-based networks as model catalysts towards deeply understanding the crucial role of sp2-carbon in nitrogen-doped carbocatalyst for oxygen reduction reaction, 2022, Xiao Z., Mou X., Meng X., Yang Q., Ma Y., Zhao N., Huang X., Shaislamov U., Kong D., Zhi, L.
- Algorithmic method of security of the Internet of Things based on steganographic coding, 2021, Zaitov E., Qayumov Q., Akhmedov Q., Makhmudova M.

RESEARCH

At the National University of Uzbekistan, about **40 studies have been carried out in scientific journals on the basis of Scopus to ensure access to cheap, reliable, stable and modern sources of energy for all.** The study **"Green β-cyclodextrin-based corrosion inhibitors: Recent developments, innovations and future opportunities"** was conducted. β-Cyclodextrin-based compounds are used to develop and innovate materials that protect against corrosion due to their sustainability, low cost, environmental friendliness, excellent water solubility and high inhibition efficiency. However, corrosion potentials of β-CD-based compounds were not reviewed with the modern trends. The essence of the problem is that a deep understanding of the development and innovation of β-CD-based compounds as corrosion inhibitors is very important in creating next-generation materials for corrosion protection. In this review, the fundamental behaviour, importance, developments and innovations of β-CD modified with natural and synthetic polymers, β-CD grafted with the organic compounds, β-CD-based supramolecular (host-guest) systems with organic molecules, polymer β-CD-based supramolecular (host-guest) systems, β-CD-based graphene oxide materials, β-CD-based nanoparticle materials and β-CD-based nanocarriers as corrosion inhibitors for various metals were reviewed and discussed with recent research works as examples. In addition, the corrosion inhibition of β-CD-based compounds for biocorrosion, microbial corrosion and biofouling was reviewed. It was found that (i) these compounds are sustainable, inexpensive, environmentally friendly, and highly water-soluble and have high inhibition efficiency; (ii) the molecular structure of β-CD makes it an excellent molecular container for corrosion inhibitors compounds; (iii) the β-CD is excellent core to develop the next generation of corrosion inhibitors. It is recommended that (i) β-CD compounds would be synthesized by green methods, such as using biological sustainable catalysts and green solvents green methods include irradiation or heating, energy-efficient microwave irradiation, mechanochemical mixing, solid-state reactions, hydrothermal reactions and multicomponent reactions; (ii) this review will be helpful in creating, enhancing and innovating the next green and efficient materials for future corrosion protection in high-impact industries.

The research **"Electrifying Schiff-based networks as model catalysts towards deeply understanding the crucial role of sp2-carbon in nitrogen-doped carbocatalyst for oxygen reduction reaction"** examines the effectiveness between the chemical microenvironment and the oxygen reduction reaction. Deeply understanding the correlation between chemical microenvironment and oxygen reduction reaction (ORR) performance is highly desired for developing efficient heteroatom-doped carbocatalysts, yet the detailed structure of chemical microenvironment remains ambiguous. Herein, a series of nitrogen-enriched carbon composites (NEC) with controllable nitrogen configuration and regularly varied sp2 carbon content are successfully developed through a rationally designed Schiff-base chemistry approach, which provides an ideal model system to testify the detailed correlation between ORR performance and sp2 carbon chemistry. By adopting vertical ionization energies (VIE) as assessments for ORR performance, the density functional theory (DFT) calculations reveal that the nitrogen-doped carbocatalyst with high sp2 carbon content possesses remarkable electrocatalytic activity. Furthermore, an important structural parameter, electron-conductive quaternary-N site (ENS) integrating the contents of quaternary nitrogen with sp2 carbon, is proposed, which exhibits well-fitted result with the value of VIE, and agrees well with the experimental results of ORR performance.

Social activity

A number of projects on cheap and clean energy are being implemented at the university. In particular, the project "Hydrogen production by photocatalytic decomposition of water under the influence of sunlight: synthesis of nanostructured photocatalysts and theoretical and experimental research of their properties" is included. Within the framework of the project, fundamental research will be carried out related to the process of obtaining hydrogen by splitting water using solar energy, obtaining the used photocatalyst materials and studying their properties. In the project, the synthesis of nanostructured oxide semiconductor photocatalyst materials, the study of their properties, formation, and the laws of catalytic mechanisms are theoretically (computer modeling) and experimentally researched.

Expected results of the project:

- Fundamental processes in semiconductor nanomaterials, such as absorption of photons (sunlight), formation and movement of charge carriers, and their transfer across the semiconductor/liquid interface will be studied at the nanoscale using high-precision devices and instruments. The results will form the basis for practical measures to improve the efficiency of photocatalytic nanomaterials.
- The influence of the types and structural properties of selected nanomaterials on their photocatalytic activity will be studied theoretically using computer simulation and a modeling methodology adapted to the "semiconductor nanoparticle-liquid" system will be developed. These results will allow us to predict the ability and efficiency of the selected nanomaterials to decompose water or other liquids, this, in turn; will increase the efficiency of the synthesis of photocatalytic materials with the required properties.
- A set of knowledge and data necessary to create a low-temperature, inexpensive and convenient technology for the synthesis of semiconductor nanomaterials of different shapes, sizes and structures (nanotubes, nanorods, nanoparticles).
- The results of the project's research involving the process of photocatalysis, and the creation of highly effective photocatalytic materials can be used in other important fields, such as the purification of wastewater from harmful organic compounds in the textile and pharmaceutical industries, as well as domestic wastewater, disinfection of air and products from microbes and bacteria, and the creation of building materials with a self-cleaning surface.
- In addition, the project will lead to the creation of a scientific school in Uzbekistan that will conduct research on the application of nanotechnology in energy and environmental protection, which is unique to Uzbekistan. This, in turn, will be the basis for training highly qualified young personnel with modern knowledge.
- Theoretical research using computer modeling methods with great potential for solving project tasks combined with experimental methods of research based on modern high-precision equipment increases the reliability of the results, which facilitates the transition to the applied project and in the future increases the possibility of implementation in the real sector.
- At the final stage of the project, a laboratory-testing device for hydrogen production based on nanostructured photocatalysts with high efficiency and stability will be created.

SDG – 8

Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

33
Number of Publications

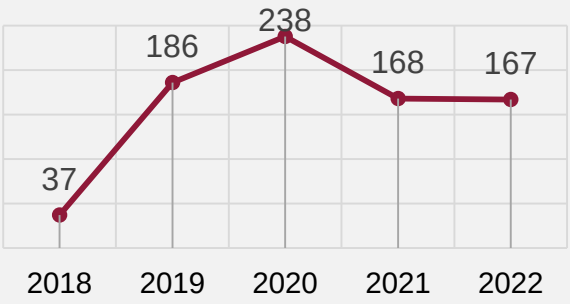
798
Total views

337
Citation

Number of University Publications

2018	2019	2020	2021	2022
1	3	13	7	8

The number of publication views



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- Assessment of the Space-Time Dynamics of Soil Salinity in Irrigated Areas Under Climate Change: a Case Study in Sirdarya Province, Uzbekistan, 2021, Kulmatov R., Khasanov S., Odilov S., Li, F.
- Evaluation of the perennial spatio-temporal changes in the groundwater level and mineralization, and soil salinity in irrigated lands of arid zone: as an example of Syrdarya Province, Uzbekistan, 2022, Khasanov S., Li F., Kulmatov R., Zhang Q., Qiao Y., Odilov S., Yu P., Leng P., Hirwa H., Tian Ch., Yang G., Liu, H.

RESEARCH

At the National University of Uzbekistan, about **40 researches have been carried out in scientific journals on the basis of Scopus regarding the provision of comprehensive and sustainable economic growth and opportunities for employment and decent work for all.** In particular, the study "Economic and geographic problems of improvement of industrial sectors and local structure of Uzbekistan" was conducted on economic growth and shortcomings in this field. Industry is the leading production sector of the national economy and forms the financial basis of society. Acceleration of economic development of the country, improvement of production efficiency depends on the development of the industrial sector. Modernization and diversification of production, technical and technological renovation, high-tech processing tar justified on the basis of deep processing of local raw material resources and the development of cooperation ko'zlangangan. At the same time, the main objectives of the efficient and optimal use of the regional potential, including reducing the disparities in the socio-economic development of the regions through modernization and diversification of the economy of the regions, are to increase industrial and export potential, to establish industrial poles. The role of industry in the regional sustainable socio-economic development of the country, on the contrary, has a negative impact on the development of the regions and the country. Therefore, a special role in the development of industrial sectors and improvement of the territorial structure of regions of the republic is to study the impact of existing natural and environmental and socio-economic factors, periodic and regional aspects of production diversification.

In the study"Methods of automation of the employment process on the basis of ratings" scientific research is carried out on what work should be done to find suitable jobs. It is necessary to create an online communication environment between the employer and the specialist on the basis of digital technologies, that is, each specialist should have a high-quality workplace based on the formation of a rating of knowledge and achievements in the learning process. This paper discusses automation models for determining the ranking and employment of university students on the basis of academic performance, scientific and creative achievements, spiritual and educational achievements. The question of determining the rating of each student, the rating of a university and the ranking of university areas on the basis of mastering subjects, personal achievements, organizing spiritual and educational activities and participating in it was studied. Based on the solution to this problem, it will be possible to satisfy the demand for high-quality personnel and control employment.

To automate the evaluation process, its mathematical modeling were carried and the parameters of the mathematical model were determined. Based on the rating, an infological and general model of a system for monitoring employment and labor relations of industry potential for employers has been developed.

One of the urgent problems in the world is to ensure the employment of people. In this regard, effective work is being done all over the world. In particular, at the National University of Uzbekistan, attention to the issue of employment is increasing year by year. In particular, one of the tasks related to employment of students, regular announcement of vacancies and recruitment process is carried out on the basis of transparency. In addition, job fairs are organized every season. All organizations in Tashkent will take part in it.

The study **"Labour market and employment in Uzbekistan"** is about the work being done to ensure employment in Uzbekistan. In the study, the demographic situation of the population of Uzbekistan and the problems of formation of labour resources, territorial distribution and utilization of labour resources based on it are illuminated in the article. The natural movement of the population of the country today, and in the near future, serves as a leading factor in the effective implementation of the process of reproduction of labour resources. According to the content and essence, the re-establishment of the labour resources is narrower than the re-establishment of the population and it is reflected in the recovery of the number and quality of the economically active population, as well as in the recovery of mental and physical abilities. It has been shown that the demographic situation and demographic development of the regions, on the basis of scientific analysis, are due to the fact that the exact labour resources and the economically active population do not differ significantly in terms of age, sex and territorial composition within the Republic. Furthermore, attempts have also been made to reveal the use of labour resources, employment and its structure of sectors, the problems of employment in men and women and their geographical features.

Social activity

Ensuring the transparency of budget revenues and expenses, establishing public control in this process, increasing the financial literacy of the population, especially young people, is one of the priority tasks set by the government. Therefore, **on March 7, 2022**, a practical seminar was held for students of the National University of Uzbekistan on the topic **"Prospects for the development of initiative budget processes in Uzbekistan"**.

ON JULY 12-15, 2022

A regional seminar organized by the International Atomic Energy Agency on the topic **"Results of the analysis of the gaps in the needs of personnel training in the field of nuclear physics"** was held.

Every year, in order to further develop all areas of the university, foreign professors and interns are attracted.

Université de Strasbourg

In 2022, Clotilde Brogniart, a researcher from the University of Strasbourg, France, visited the International Relations Department of NUU for 6 months to exchange experience.

With the support of the Embassy of France in Uzbekistan, this international experience exchange program, organized within the framework of the Service Civique program introduced by the French government for young people, is aimed at developing cooperation between universities, organizing various cultural and educational events between foreign students and young people, and the participation of prestigious universities. aimed at studying and implementing best practices in this field.

SDG – 9

Build resilient infrastructure, promote sustainable industrialisation and foster innovation

25
Number of Publications

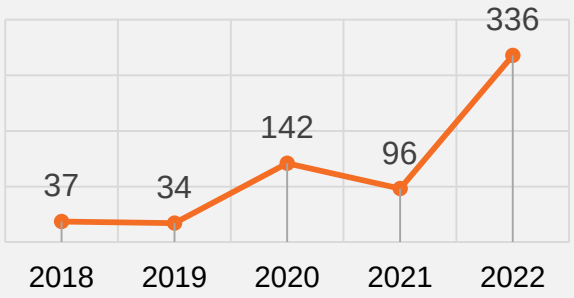
645
Total views

53
Citation

Number of University Publications

2018	2019	2020	2021	2022
1	1	6	7	10

The number of publication views



Most viewed articles

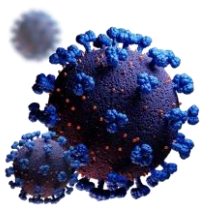
- Digital platforms for industrial clusters and enterprises: Essence and structure, 2020, Babkin A., Tashenova L., Mamrayeva D., Makhmudova, G.
- Development of models and algorithms for transport and group equipment tasks, 2022, Kabulov A., Kalandarov I., Saymanov I.
- Detoxifying SARS-CoV-2 antiviral drugs from model and real wastewaters by industrial waste-derived multiphase photocatalysts, 2022, Hojamberdiev M., Czech B., Wasilewska A., Boguszewska-Czubara A., Yubuta K., Wagata H., Daminova Sh., Kadirova Z., Vargas R.

RESEARCH

More than **30 articles have been published in scientific journals on the basis of Scopus on the goal of sustainable development at the National University of Uzbekistan, the creation of a solid infrastructure, the introduction of a wide industrialized and innovative system.** The study **"Detoxifying SARS-CoV-2 antiviral drugs from model and real wastewaters by industrial waste-derived multiphase photocatalysts"** was conducted. The use of antiviral drugs has surged as a result of the COVID-19 pandemic, resulting in higher concentrations of these pharmaceuticals in wastewater. The degradation efficiency of antiviral drugs in wastewater treatment plants (has been reported to be too low due to their hydrophilic nature, and an additional procedure is usually necessary to degrade them completely. Photocatalysis is regarded as one of the most effective processes to degrade antiviral drugs.

The present study aims at synthesizing multiphase photocatalysts by a simple calcination (of industrial waste from ammonium molybdate production (WU photocatalysts) and its combination with WO3 (WW photocatalysts). The X-ray diffraction (XRD) results confirm that the presence of multiple crystalline phases in the synthesized photocatalysts. UV–Vis diffuse reflectance spectra reveal that the synthesized multiphase photocatalysts absorb visible light up to 620 nm. Effects of calcination temperature of industrial waste (550–950 °C) and WO3 content (0–100%) on photocatalytic activity of multiphase photocatalysts (WU and WW) for efficient removal of SARS-CoV-2 antiviral drugs (lopinavir and ritonavir) in model and real wastewaters are studied. The highest k1 value is observed for the photocatalytic removal of ritonavir from model wastewater using WW4 (35.64 ×10–2 min–1). The multiphase photocatalysts exhibit 95% efficiency in the photocatalytic removal of ritonavir within 15 of visible light irradiation. In contrast, 60 min of visible light irradiation is necessary to achieve 95% efficiency in the photocatalytic removal of lopinavir. The ecotoxicity test using zebrafish (Danio rerio) embryos shows no toxicity for photocatalytically treated ritonavir-containing wastewater, and the contrary trend is observed for photocatalytically treated lopinavir-containing wastewater.

The synthesized multiphase photocatalysts can be tested and applied for efficient degradation of other SARS-CoV-2 antiviral drugs in wastewater in the future. If the mentioned processes are carried out, they will have a good effect on nature and human health.



RESEARCH IS BEING CARRIED OUT IN COOPERATION WITH UNIVERSITIES

The research "Digital platforms for industrial clusters and enterprises: Essence and structure" was conducted in cooperation with St. Petersburg Polytechnic University of Russia, Kazakhstan Karaganda University named after Buketov E.A. In the conditions of modern economic development, characterized by digital transforming and restructuring of the economies of different world powers to the new management forms associated with the active introduction of information and telecommunication technologies, it is possible to speak about active formation and development of digital economies. The issues of digital transformation are becoming particularly relevant for the integrated structures represented by industrial clusters. It is important to understand that industrial clusters can be considered in the structure of an evolutionary transition: a protocluster - a cluster - an industrial cluster - an innovative industrial cluster -an innovative-active industrial cluster - a system-forming innovation-active industrial cluster, all these differ from each other in the level of innovation activity, as well as in the amount of digital potential, which is formed and developed in the process of the active implementation of various digital tools, as well as the creation of digital platforms, on which all participants in the cluster communicate. Purpose of the research is the identification of the essential characteristics and structure of digital platforms of industrial clusters and enterprises.

In the study **"Development of models and algorithms for transport and group equipment tasks"** it is proposed to solve the problems of choosing the optimal technological route for the transportation of the infrastructure of the production workshop, group equipment and the operational cycle of technological modules. Models and algorithms have been developed to build the optimal technological route of transportation of parts, group equipment and work cycle of technological modules consisting of machine tools and auto-operators (robots). In this paper, they are formulated and solved in the form of a coverage problem using the gradient method. Based on the selection of the base parts of the group, the construction of fixed sets and the classification of objects by the test method, it is proposed to solve the problems of grouping of objects on the basis of structural and technological characteristics and operations of transporting parts, to increase the reliability of classification and to provide close to the minimum number of groups of parts.

Social activity

An exhibition of scientific production and scientific developments was held at the National University of Uzbekistan in April 2022.

150+ scientific developments, innovative inventions developed by teachers of the university.

In addition, an event was held at NUU with the participation of UNICAC ("University Cooperation Framework for Knowledge Transfer in Central Asia and China") project partners within the Erasmus+ program. Project members from Italy, Finland, Tajikistan, professors and teachers, students of the university took part in it.

The annual "InnoWeek.uz-2022" International Innovative Ideas Week of 2022 was dedicated to **"Green innovations for sustainable development"**. Within the framework of the week, innovative technologies, alternative and energy-saving products, green innovations created and created by representatives of Uzbekistan and foreign countries are presented.

SDG – 10

Reduce inequality within and among countries

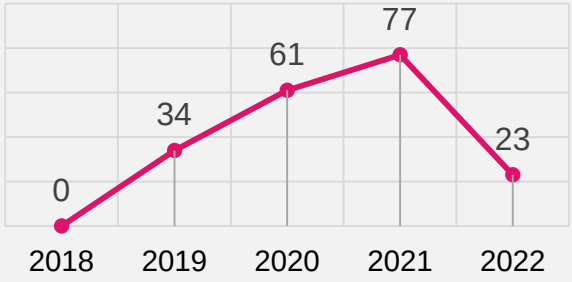
9
Number of Publications

195
Total views

3
Citation

Number of University Publications

The number of publication views



Most viewed articles

- Cultural and language effects of migration: The case of migrants and chuvash people in the republic of bashkortostan (russia), 2021, Kobzeva O., Kolomoets E., Lukyanets A., Korotaeva, L.
- Risk management and insurance, 2019, Iminova, N., Abdimuminova S., Mamurov, B.
- Mechanisms of improving social protection of women: Risk indicators and statistics (In the context of gender-based violence), 2020, Narbaeva T., Ganieva M., Nurmatova M., Latipova N., Ziyaeva H., Kizi Z.

RESEARCH

The study **"Cultural and language effects of migration: The case of migrants and chuvash people in the republic of Bashkortostan (russia)"** was conducted at the National University of Uzbekistan. According to the World Migration Report there are 11.6 million migrants in Russian Federation, the majority of which (43%) have come from countries of Central Asia: Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan. The study aims to evaluate the impact of migration on both migrant and host cultures to establish the changes in native languages and cultures of migrant ethnic groups in the Russian Federation under the influence of a single state language. For the study, the authors used statistical data of the Russian Federal State Statistics Service, findings of the 1920-2010 censuses, and mathematical modeling of cultural changes based on differential equation. The case of Chuvash people living in the Republic of Bashkortostan was explored by the mathematical modeling method to identify the alien cultural influence on the recipient country, with a particular emphasis on changes in the local language. The direct correlation has been found between the extent to which the migrant community preserve their homeland traditions at a new place and the probability of shifts in the host country's culture. The preservation of migrants' native language in everyday living demonstrates a high probability of replacing the host language by the migrant one in their environment (the probability is 5-10% higher than the expected level for 7 districts and 11 to 50% - in 8 districts out of 26 studied). The results may have practical use in evaluating the probability of major cultural shifts across the world as the international mass migration increases in volume and scope.

In the "Risk management and insurance" study, special attention is paid to deepening integration into the global community, the rapid development of all areas, a significant increase in the flow of information, and the development of information technologies. Risk management and measures to prevent or mitigate financial shocks can play a role, but cannot solve situations that have led to economic losses due to one reason or another. Suggestions and recommendations are given at the end of the article.

The study "Mechanisms of improving social protection of women: Risk indicators and statistics (In the context of gender-based violence)" is about domestic violence. In international practice, there are important quantitative and qualitative standards of assistance to victims of domestic violence. The most advanced is implemented based on the recommendations of the European Parliament, the Council of Europe Working Group on Violence against Women, the European Network of Non-Governmental Organizations against Violence

against Women (WAVE). Public organizations abroad are interested in the development and implementation of principles and standards of the quality of social services. Adherence to such standards ensures the provision of quality assistance to victims in order to prevent further acts of violence against women and their children. Victims of domestic violence are rarely willing to talk openly about their problems. Often they experience fear, guilt, shame and stop themselves from seeking help. Due to high staff turnover in government agencies, they often lack qualified professionals and are overloaded with other responsibilities. This has a negative impact on the problem of gender-based violence. This article examines gender and domestic violence, social protection, risk indicators, ways to improve shelter and social protection mechanisms, including rehabilitation of victims of violence.

Social activity

One of the most widely discussed topics in the world today is inclusive education. We can understand that inclusive education means creating equal opportunities for everyone in the education process. It is known that today the UN sustainable development goals are directed in all directions and serve as the basis for development criteria. One of these goals is to improve the quality of inclusive education and its adaptation to modern requirements.

The National University of Uzbekistan is conducting a number of activities to create favorable conditions for people with disabilities in each area and update existing ones. The development strategy of the university for 2022-2026 plans to further improve this area. During the recently held second France-Uzbekistan education forum, the NUU vice-rector Shukhrat Toshmatov made agreements on establishing cooperation the French INSHEA (Institut national supérieur handicap et enseignements adaptés - Education adapted to persons with disabilities).

In cooperation with the “Social Work” department of NUU, with the financial support of the public fund for supporting NGOs of civil society under the Oliy Majlis of the Republic of Uzbekistan on the theme **"Towards an inclusive society"** every year traditional articles competition was held.

In addition, the rector of the NUU participated in the opening event of the Cultural and Educational Center named after Mirzo Ulugbek at the Institute of Philology and Intercultural Communication of Kazan Federal University. This center will help to promote and develop the Uzbek language and culture in Tatarstan, and in general, it will further strengthen cooperation with scientific and educational institutions of Uzbekistan.

1 PLACE

NUU ranks first in the number of students with disabilities among higher education institutions in Uzbekistan

3 People with the first disability group work as a professor at the NUU.

This is also a great result. At the same time, it is a very important aspect that the position of personal assistant is being introduced to professors and teachers with disabilities at the NUU, that is, the position of personal assistant adapted to help them with writing and drawing is being introduced.

In the main library of NUU, the **NVDA** (NonVisual Desktop Access) program for the blind has been installed on all computers

NUU is working together with the Association of Disabled People of Uzbekistan to create inclusive education. That is, a memorandum has now been signed between the Association of Disabled Persons of Uzbekistan and NUU, and according to this memorandum, and we are not only organizing those volunteers, but also agreed to conduct scientific research on disability issues.

Press the button to watch the interview

SDG – 11

Make cities inclusive, safe, resilient and sustainable

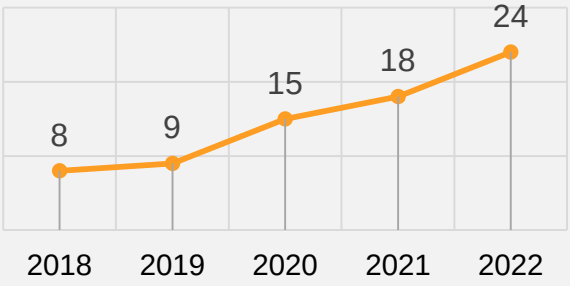
7
Number of Publications

78
Total views

2
Citation

Number of University Publications

The number of publication views



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- Mechanisms of improving social protection of women: Risk indicators and statistics (In the context of gender-based violence), 2020, Narbaeva T., Ganieva M., Nurmatova M., Latipova N.
- Improvement of social partnership processes in Uzbekistan, 2022, Ganieva M., Abdukhalilov A., Latipova N., Nishanbaeva, E.
- "Social monitoring" as a component of the social protection system in the post institutional adaptation period, 2020, Zaitov E., Qayumov Q., Akhmedov Q., Makhmudova M.

RESEARCH

At the National University of Uzbekistan, about **20 articles have been published in scientific journals on the basis of Scopus about ensuring the openness, safety, durability and ecological stability of the city and residential areas.** The study **"Development of tourism in Uzbekistan and cultural-historical tourist resource potential of Kashkadarya region"** was carried out. In the modern world economic development, the tertiary sector plays an important role in the life of different countries. Tourist-reaction services are gaining importance in this regard. The main goal of this study was to analyze the potential of the cultural and historical tourism resource of the Kashkadarya region and to identify its regional features. Conditions of tourism formation in Uzbekistan have been analyzed. Attention was paid to existing recreational potential and the effectiveness of its use. The specificity of the classification of tourism recreational resources based on the research of scientists has been clarified. The potential of the Kashkadarya region tourist recreational resources, which plays a special role by its resource potential in the development of tourism in Uzbekistan, has been analyzed as an example of monuments of material and cultural heritage, at the scale of urban and rural areas.

In the study **"Applying remote sensing techniques to monitor green areas in Tashkent Uzbekistan"**, land use cover change (LULC) is one of the most important signals of regional environmental monitoring and research. Recently, interest in capital cities is growing, and the number of people moving to cities, especially in developing countries, is increasing. Accordingly, the more people come to the cities, the more the pressure on the land increases. Land prices are rising and developers are trying to take advantage of open green spaces. Green areas of various sizes address many urban ills and environmental problems and improve the quality and quality of life of urban residents, as urban green areas provide a variety of ecosystem services. Green areas include parks, forests, nature reserves, and vacant lots. With population growth and urban sprawl, more and more open land, forests, and vacant land have been converted into construction, buildings, and residential land in response to growing needs. To assess accuracy, we applied automatic supervised classification using QGIS 3.18. The reference values were based on ground data and visual interpretation.

In the study **"Efficient NO2sensing performance of a low-cost nanostructured sensor derived from molybdenite concentrate"**,the accumulation of solid industrial waste requires the development of processing processes and technologies to reduce their negative impact on the environment. Herein, molybdenite concentrate from the mining-metallurgy industry is systematically characterized as a valuable starting material for the fabrication of an efficient and low-cost nanostructured gas sensor. Few-layer MoS2 is obtained from molybdenite concentrate by liquid nitrogen exfoliation and deposited on different substrates by spin coating and drop casting. It is found that spin coating is advantageous over drop casting in fabricating a homogeneous and dense few-layer MoS2 film. The charge-transfer-based sensing performance of the fabricated few-layer MoS2 film is investigated upon exposure to NO2 at different temperatures (50, 100, and 120 °C). At an optimized temperature of 120 °C, a faster recovery is achieved, and the fabricated device exhibits 28, 38, and 44% sensitivity to 10, 50, and 100 ppm NO2, respectively, making it suitable for practical applications.

This work demonstrates a straightforward approach not only for the conversion of molybdenite concentrate into an efficient and low-cost nanostructured gas sensor but also for the reduction of the negative impact of accumulated molybdenum concentrate on the environment and human health.

Social activity

NUU regularly organizes various conventions, conferences, visits to museums, and creative evenings with the aim of increasing students love for books and further forming their cultural consciousness.

An international conference was held within the framework of the **"3D DIGITAL SILK ROAD"** project. Official page of the project.

Social activity

In addition, the opening ceremony of the Tatar writer, scientist and educator Kayum Nosiriy creative center was held at the faculty of the Uzbek-Kazan joint educational program. In addition, a cultural and educational center named after Mirzo Ulugbek was opened on the basis of the Institute of Philology and Intercultural Dialogue of Kazan Federal University.

"OUR LANGUAGE IS DIFFERENT, THE GOAL IS ONE: QUALITY EDUCATION IS THE BASE OF DEVELOPMENT"

A **cultural event** was organized with the participation of foreign professors and teachers working at the NUU and foreign students. Today, professors and teachers from several countries such as France, Germany, the USA, South Korea, Japan, Malaysia, China, the Russian Federation, Kazakhstan, Kyrgyzstan, Tajikistan are working at the National University of Uzbekistan. They share their knowledge and experience with their Uzbek colleagues and students. In addition, students from foreign countries are studying at the National University of Uzbekistan for bachelor's, master's and doctoral studies.

Press the button to watch the interview

SDG – 12

Ensure sustainable consumption and production patterns

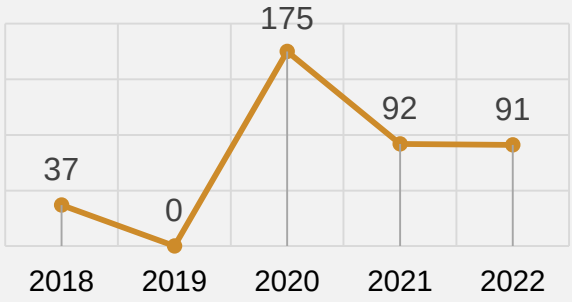
15
Number of Publications

405
Total views

100
Citation

Number of University Publications

The number of publication views



Most viewed articles

- Challenges for the sustainable use of water and land resources under a changing climate and increasing salinization in the Jizzakh irrigation zone of Uzbekistan, 2020, Kulmatov R., Mirzaev J.,Abuduwaili J., Karimov B.
- Investigating and evaluating the dynamics of change in water resources of the Aydar-Arnasay Lake system in Uzbekistan, 2021, Kulmatov R., Taylakov A., Khasanov, S.
- Weight of Carrot Phytomass and Content of Vitamin C 100 Days after Seeding in Dependence of Vermicompost Quantity and Earthworms (Eisenia fetida) in Soil Substrate, 2022, Kováčik P., Wierzbowska J.; Smoleń S., Polláková N., Jabbarov, Z.

RESEARCH

About 20 articles have been published in scientific journals on the basis of Scopus regarding the transition to intelligent consumption and production models at the National University of Uzbekistan. In particular, the study **"Challenges for the sustainable use of water and land resources under a changing climate and increasing salinization in the Jizzakh irrigation zone of Uzbekistan"** was conducted. Jizzakh Province in Uzbekistan is one of the largest irrigated areas in Central Asia without natural drainage. In combination with aridity, climate change and extensive irrigation practices, this has led to the widespread salinization of agricultural land. The aim of this study was to identify opportunities to improve the reclamation status of the irrigated area and how best to effectively use the water resources in Jizzakh Province based on investigations conducted between 1995 and 2016. A database of field measurements of groundwater levels, mineralization and soil salinity conducted by the provincial Hydro-Geological Reclamation Expeditions was used in the study. The total groundwater mineralization was determined using a portable electric conductometer (Progress 1T) and the chloride concentration was determined using the Mohr method. The soil salinity analyses were conducted by applying two different methods: (1) the extraction and assessment of the soluble salt content, and (2) using an SM-138 conductivity sensor applied to a 1:1 mixture of soil sample and water. The analyses of the monitoring results and the salt balance in the "irrigation water-soil-drainage water" system clearly demonstrated that the condition of the irrigated land in the province was not significantly improved. Under these conditions, the stability of crop yields is achieved mainly through the use of large volumes of fertilizer. However, excess amounts of mineral fertilizers can also cause the salinization of soils. The average groundwater salinization value in most of the irrigated land (75.3%) fluctuated between 1.1 and 5.0 g/L, while the values were less than 1.0 g/L in 13.1% of the land and in the range of 5.1–10.0 g/L in 10.5% of the land. During the period of 1995–2016 the salinization level of the irrigated land in Jizzakh Province increased slightly and the area could be divided into the following classes: no salinity (17.7% of the total area), low salinity (51.3%), moderate salinity (29.0%), and high salinity (2.0%).

The study "Investigating and evaluating the dynamics of change in water resources of the Aydar-Arnasay Lake system in Uzbekistan" was conducted. The Aydar-Arnasay Lake System (AALS) is located in the middle of the Syrdarya River, to the south of the Chardara Reservoir, and in Jizakh and Navoi provinces of the Republic of Uzbekistan, adjacent to the low plain of South Mirzachul. Currently, the AALS has a significant impact on the regional ecosystem and socio-economic conditions of the region. Studying and evaluating the AALS hydrology, the water volume, surface area, and variability of water levels altogether play an important role in the development of fisheries and ecotourism in the region. However, in the past studies, the dynamic changes in the volume, area, and water levels of the AALS have not been investigated through up-to-the-date geo-information systems (GIS), requiring additional research to formulate a proper methodology considering the potential aspects of GIS. Therefore, this paper aims at analyzing the dynamics of changes in the water level, surface area, and water volume of the AALS by using GIS technologies within 1993–2017 years. During the period from 1993 to 2006, the water level and the surface area of the AALS steeply increased and remained stable with negligible positive and negative fluctuations in the rest of the experimental years. These findings were successfully tested and validated by ANOVA, indicating an exceptionally low F-significance of 0.0008. According to the AALS's water volume dynamics, we investigated here the role of two factors: anthropogenic—the outflow water discharge from the reservoir located in the neighboring country; and natural—the amount of perennial precipitation. Consequently, we ascertained that the role of precipitation as a natural driving factor in expansion is majorly less than the outflow water from the reservoir, despite having a gradual increase in the perennial precipitation trend. As we assume that the hydrological characteristics of the AALS are strongly dependent on air temperature and the amount of precipitation due to the extreme restriction of outflow water discharge from the reservoir, thus the establishment of proper GIS-tracking and monitoring methodology is recommended to early warn the potential minor changes which could become severe in the near future.

"Weight of Carrot Phytomass and Content of Vitamin C 100 Days after Seeding in Dependence of Vermicompost Quantity and Earthworms (Eisenia fetida) in Soil Substrate" was conducted in cooperation with Slovak University of Agriculture, University of Warmia and Mazury. The aim of the study was to investigate the effects of different amounts of vermicompost (0, 10, 20, 25 and 50%) and Eisenia fetida earthworms (0, 10, 20 per pot) on the weight of carrot roots and leaves and their growth in 100 days after planting. Vitamin C content was assessed. The obtained results show that with an increase in the amount of vermicompost in the soil substrate, the weight of roots and leaves increased and the amount of vitamin C decreased. Root weight increased more dynamically than leaf weight. A high ratio - even 50% Vc in the soil substrate did not have a negative effect on the formation of above-ground and below-ground phytomes. Earthworms had a positive effect on the formation of carrot roots and leaves. The effect on the roots was stronger. The effect of earthworms on phytomass formation depended on the interactive effect of the amount of vermicompost in the substrate and the number of earthworms.

PROGRAM TO REDUCE THE USE OF PAPER AND PLASTIC IN CAMPUS

The University intends to be more environmentally friendly, there are some programs that the administration offered to the students and staff. For example, students and staff are encouraged to use more electronic documents, rather than print them out. In order to do this:

The university created an online platform for students, academic staff to conduct the task giving, and task submission process online (http://shartnoma.nuu.uz/). They are given login, passwords and they can download the necessary materials and books, and they may submit their home tasks online instead of wasting tons of paper every year.

The university offers e-books for students to use instead of hard copies and try to expand the electronic library of the University, so that it can be more convenient for students to use, rather than coming to the library for the necessary book.

Canteens, now, do not use plastic bags or containers to serve take-away food. Students are encouraged to come with their own multiple-use containers and bring their own reusable water-bottles for the day.

SDG – 13

Take urgent action to combat climate change and its impacts

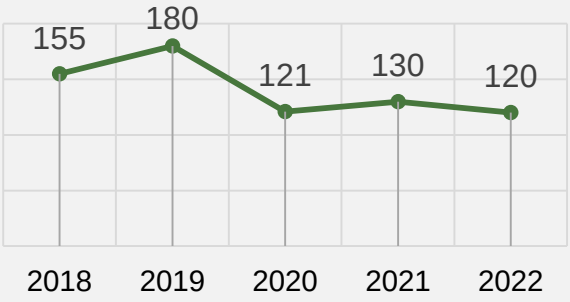
20
Number of Publications

706
Total views

371
Citation

Number of University Publications

The number of publication views



Most viewed articles

- Methanol synthesis from the catalytic hydrogenation of CO2 over CuO–ZnO supported on aluminum and silicon oxides, 2017, Tursunov O., Kustov L.,Tilyabaev, Z.
- Salt-Tolerant Plant Growth Promoting Rhizobacteria for Enhancing Crop Productivity of Saline Soils, 2019, Egamberdieva D., Wirth, S., Bellingrath-Kimura S., Mishra J., Arora N.
- High-efficiency photoreduction of CO2 to solar fuel on alkali intercalated Ultra-thin g-C3N4 nanosheets and enhancement mechanism investigation, 2022, Fang R., Yang Z., Kadirova Z., He Z., Wang Z., Ran J., Zhang, L.

RESEARCH

At the National University of Uzbekistan, more than **20 articles have been published in scientific journals on the basis of Scopus regarding taking quick measures to combat climate change and its consequences.** In particular, the research **"Methanol synthesis from the catalytic hydrogenation of CO2 over CuO–ZnO supported on aluminum and silicon oxides"** was conducted in cooperation with the National Research Technological University of Russia MISIS. This paper reports the synthesis of methanol, catalytic evaluation and characterization of catalysts CuO–ZnO supported on SiO2 and Al2O3, to investigate hydrogenation of CO2 to methanol (MeOH). The catalysts CuO–ZnO/Al2O3 and CuO–ZnO/SiO2 were prepared using impregnation and precipitation techniques of the metals over the supports. The various testing methods, such as XRF, XRD, N2 physisorption, XPS, CO2 TPD and H2-TPR technical devices were applied to make a thorough characterization of the chemico-physical properties of the prepared catalysts. The catalytic test and activity were performed applying a tubular, stainless steel fixed-bed reactor and excurrent products were determined by GC with TCD and FID detectors. The effect of different operating parameters, such as the reaction temperature and pressure were investigated. The catalyst prepared by impregnation of the metals over the Al2O3 support was the most selective and active to methanol. This particular result can be clarified by the lower and better temperature reducibility of copper oxide particles, as well as with higher stability of the Al2O3 support.

In addition, the research **"Salt-Tolerant Plant Growth Promoting Rhizobacteria for Enhancing Crop Productivity of Saline Soils"** in cooperation with China's Xinjiang Institute of Ecology and Geography, Germany's Agricultural Landscape Research Center, India's Babasaheb Bhimrao Ambedkar University and National University Uzbekistan research was conducted. Soil salinity has emerged as a serious issue for global food security. It is estimated that currently about 62 million hectares or 20 percent of the world's irrigated land is affected by salinity. The deposition of an excess amount of soluble salt in cultivable land directly affects crop yields. The uptake of high amount of salt inhibits diverse physiological and metabolic processes of plants even impacting their survival. The conventional methods of reclamation of saline soil which involve scraping, flushing, leaching or adding an amendment (e.g., gypsum, CaCl2, etc.) are of limited success and also adversely affect the agro-ecosystems. In this context, developing sustainable methods which increase the productivity of saline soil without harming the environment are necessary.

The study “Agricultural impacts drive longitudinal variations of riverine water quality of the Aral Sea basin (Amu Darya and Syr Darya Rivers), Central Asia” was conducted. River ecosystems are under increasing stress in the background of global change and ever-growing anthropogenic impacts in Central Asia. However, available water quality data in this region are insufficient for a reliable assessment of the current status, which come as no surprise that the limited knowledge of regulating processes for further prediction of solute variations hinders the development of sustainable management strategies. Here, we analyzed a dataset of various water quality variables from two sampling campaigns in 2019 in the catchments of two major rivers in Central Asia—the Amu Darya and Syr Darya Rivers. Our results suggested high spatial heterogeneity of salinity and major ion components along the longitudinal directions in both river catchments, pointing to an increasing influence of human activities toward downstream areas. We linked the modeling outputs from the global nutrient model (IMAGE-GNM) to riverine nutrients to elucidate the effect of different natural and anthropogenic sources in dictating the longitudinal variations of the riverine nutrient concentrations (N and P). Diffuse nutrient loadings dominated the export flux into the rivers, whereas leaching and surface runoff constituted the major fractions for N and P, respectively. Discharge of agricultural irrigation water into the rivers was the major cause of the increases in nutrients and salinity. Given that the conditions in Central Asia are highly susceptible to climate change, our findings call for more efforts to establish holistic management of water quality.

Social activity

In March 2022, as part of the

"GREEN SPACE"

100 ornamental and drought-resistant saplings were planted in these training grounds

They are always looked after by the university's requirements and teachers. Various conferences on prevention of natural disasters will be organized.

In particular, on June 1, 2022, an international scientific-practical conference was organized on the topic "Hydrometeorological research in the context of climate change: current problems and their solutions".

In addition, on the basis of the cooperation agreement concluded between the Leibniz University of Hannover, within the framework of the academic exchange program, on August 10-15, 2022, 2 professors and teachers of this foreign university and 19 students of NUU in cooperation with teachers, researchers and students, they visited NUU to conduct scientific research, give lectures, and conduct training and field training at the "Chorvoq" training and field practice base. During this visit, local and foreign participants were instructed to teach students how to apply scientific knowledge in the field of ecology in relation to **the sustainable use of soil and water**, to explain the need for international cooperation for the sustainable development of societies, to train students in local (e.g., pastoralism) in Central Asia and irrigated agriculture).

SDG – 14

Conserve and sustainably use the oceans, seas and marine resources for sustainable development

4
Number of Publications

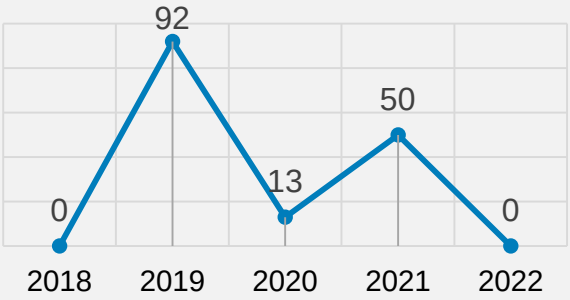
155
Total views

25
Citation

Number of University Publications

2018	2019	2020	2021	2022
0	1	2	1	0

The number of publication views



Most viewed articles

- Change in the parameters of soils contaminated by oil and oil products, 2019, Jabbarov Z., Abdrakhmanov T., Pulatov A., Kováčik P., Pirmatov, K.
- The aral tragedy and its threats to regional life, issues of cooperation in solving the aral problem, 2021, Okhunov R., Rustamova R., Alimov U., Shadenov R., Khodjayev A.
- Agricultural impacts drive longitudinal variations of riverine water quality of the Aral Sea basin (Amu Darya and Syr Darya Rivers), Central Asia, 2021, Leng P., Zhang Q., Li F., Kulmatov R., Wang G., Qiao Y., Wang J., Peng Y., Tian Ch., Zhu N., Hirwa H., Khasanov S.

RESEARCH

At the National University of Uzbekistan, articles on the **conservation of oceans, seas and marine resources and their rational use in the path of sustainable development** have been published in scientific journals based on Scopus. In particular, the study "Change in the parameters of soils contaminated by oil and oil products" was conducted in cooperation with the Slovak University of Agriculture. The oil well drilling and oil processing industries are globally the main contaminants of environmental condition caused by human economic activities. Oil spills have a negative impact on the environment, economy, and society. In this research, the effects of oil with different chemical contents on soil types formed in two soil-climatic conditions have been studied. The purpose of this research is to study the change of soil properties by oil pollution. The experiments have been conducted in irrigated and non-irrigated soils of the desert region of the Kashkadarya and Surkhandarya (Uzbekistan). The results have shown that aggregates (0.25; 0.5; 1; 2; 3; 5; 7; 10 mm) which are the important of soil fertility have changed by oil and oil production, and the changes have proven to be temporary. The effect of the 5% and 15% concentrations of oil, engine oil, petrol, kerosene has been studied. The aggregates 0.25 mm and 0.5 mm have the biggest change among aggregates, in fact, aggregates of 0.25 mm at the level of 5% of oil decreased by 27.02%, at the level of 15% of oil decreased by 99.8%, at the level of 5% of kerosene decreased by 2%, at the level of 15% of oil decreased by 98.1%. Aggregates of 0.5 mm at the level of 5% of oil decreased by 6.44%, at the level of 15% of oil decreased by 67.14%, at the level of 5% of kerosene decreased by 12.75%, at the level of 15% of oil decreased by 92.8%. Engine oil and Petrol at levels 5 and 15 have relatively rare changed. Also, as a result of oil and oil pollution, the total carbon dioxide in the soil has grown briefly, which is an anthropogenic carbon and insignificant for soil fertility and humus. As a result, an anthropogenic carbon increased in gray-brown soil (Durisols Technic, WRB) at 0 – 35 cm layer by 0.22%, irrigated meadow-alluvial soil (Fluvisols, WRB) by 0.31%, irrigated gray-brown soil (Durisols Technic, WRB) by 0.44%, irrigated Takyr-meadow soil (Calsisols, WRB) by 0.25%, Takyr soil (Calsisols, WRB) by 0.32%, sandy Desert soil (Durisols Technic, WRB) by 0.21%.

In addition, the study**"Agricultural impacts drive longitudinal variations of riverine water quality of the Aral Sea basin (Amu Darya and Syr Darya Rivers), Central Asia"** was conducted with a number of foreign universities. River ecosystems are under increasing stress in the background of global change and ever-growing anthropogenic impacts in Central Asia. However, available water quality data in this region are insufficient for a reliable assessment of the current status, which come as no surprise that the limited knowledge of regulating processes for further prediction of solute variations hinders the development of sustainable management strategies. Here, we analyzed a dataset of various water quality variables from two sampling campaigns in 2019 in the catchments of two major rivers in Central Asia—the Amu Darya and Syr Darya Rivers. Our results suggested high spatial heterogeneity of salinity and major ion components along the longitudinal directions in both river catchments, pointing to an increasing influence of human activities toward downstream areas. We linked the modeling outputs from the global nutrient model (IMAGE-GNM) to riverine nutrients to elucidate the effect of different natural and anthropogenic sources in dictating the longitudinal variations of the riverine nutrient concentrations (N and P).

The study"The aral tragedy and its threats to regional life, issues of cooperation in solving the aral problem" was conducted. The whole natural system contributes to the creation of the most favorable environment for a stable environment, biological life, and especially human life. Nature is not the wealth of mankind, it is the natural world that surrounds it, and man is a part of it. The formation of a system of knowledge about the state of human and environmental protection and the interaction between the hazardous impacts of the polluted environment creates the problem of creating a unified and integrated system for environmental security. Ecological exploitation of totalitarian, authoritarian policies in the post-Soviet system is one of the main reasons for the emergence of a severe environmental situation in the country. The negative consequences of this policy were particularly evident in the globalization of the Aral Sea problem, which began in the 1960s. This article covers environmental and natural security issues in the Republic of Uzbekistan, and the Aral Sea, one of the strongest natural disasters in the region.

SDG – 15

Rational use of forests, combating desertification, putting an end to land degradation and restoring land fertility, and eliminating the risk of biodiversity loss

11
Number of Publications

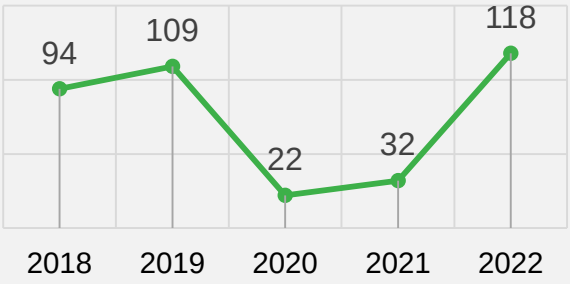
365
Total views

33
Citation

Number of University Publications

2018	2019	2020	2021	2022
1	2	1	1	6

The number of publication views



Most viewed articles

- Vegetation of Central Asia and Environs, 2018, Egamberdieva D., Öztürk, M.
- Change in the parameters of soils contaminated by oil and oil products, 2019, Jabbarov Z., Abdrakhmanov T., Pulatov Alimb; Kováčik P., Pirmatov, K.
- Evaluation of the perennial spatio-temporal changes in the groundwater level and mineralization, and soil salinity in irrigated lands of arid zone: as an example of Syrdarya Province, Uzbekistan, 2022, Khasanov S., Li F., Kulmatov, R., Zhang Q., Qiao Y.

RESEARCH

At the National University of Uzbekistan, articles have been published in Scopus scientific journals on **rational use of forests, combating desertification, putting an end to land degradation and restoring land fertility, and eliminating the risk of biodiversity loss**. In particular, the research **"Vegetation of Central Asia and Environs"** was conducted. Central Asia is a large and understudied region of varied geography, ranging from the high passes and mountains of Tian Shan, to the vast deserts of Kyzyl Kum, Taklamakan to the grassy treeles steppes.

This region is faced with adverse conditions, as much of the land is too dry or rugged for farming. Additionally, the rich specific and intraspecific diversity of fruit trees and medicinal plants is threatened by overgrazing, oil and mineral extraction, and poaching. Countless species from the approximately 20 ecosystems and 6000 plant taxa are now rare and endangered.

Traditional vegetation studies in this region are far from adequate to handle complex issues such as soil mass movement, soil sodicity and salinity, biodiversity conservation, and grazing management. However, data analysis using a Geographical Information System (GIS) tool provides new insights into the vegetation of this region and opens up new opportunities for long-term sustainable management. While vegetation planning can occur at a property scale, it is often necessary for certain factors, such as salinity, to be dealt with on a regional scale to ensure their effective management. GIS increases the effectiveness and accuracy of vegetation planning in a region. Such regional planning will also greatly increase biodiversity values.

This book systematically explores these issues and discuses new applications and approaches for overcoming these issues, including the application of GIS techniques for sustainable management and planning. Professional researchers as well as students and teachers of agriculture and ecology will find this volume to be an integral resource for studying the vegetation of Central Asia.

In addition,the study **"Evaluation of the perennial spatio-temporal changes in the groundwater level and mineralization, and soil salinity in irrigated lands of arid zone: as an example of Syrdarya Province, Uzbekistan"** was conducted. Salt accumulation in irrigated lands is an intercontinental environmental issue that adversely influences the sustainable land use, agricultural land productivity and global food security. With the higher level of groundwater table (GWT) and its increased mineralization, global climate emergency in arid lands (also obviously increase soil salinity (SS) in Uzbekistan. Analyses of perennial data on saline agricultural lands were performed by principally depending on conventional outdated methods. The integration of GIS approach to map the widespread of GWT, groundwater mineralization (GWM) and SS in irrigated lands of Syrdarya province in Uzbekistan were manipulated within the limited time period. Nevertheless, in particular irrigated areas where GWT is shallow and highly mineralized, insufficient scientific data and GWT maps created in accordance with GIS-based methods is identified, restricting a better establishment of tracing the SS of irrigated land over time as GWT and GWM rise. Thus, our study is to trace and delineate the dynamic and spatial changes in GWT, GWM and SS caused by climate factors over 2000–2019 by integrating traditional research methods and cross-validated GIS methods in the example of irrigated land of Syrdarya province in Uzbekistan. To reach this goal, a fieldwork was organized and relying on the in-situ data collected from around 3800 different points for soil sampling and 1500 observation wells for groundwater studies, GIS-based maps were created for four last experimental years 2016–2019 using the Inverse Distance Weighting (IDW) interpolation.

Social activity

At the National University of Uzbekistan, various conferences, seminars, training and practical work are held on fifteenth goal.

A scientific-practical conference was held on the topic

"Integrated management and melioration of soils to ensure food security: new approaches and innovative solutions"

and

"Formation of ecological culture: institutional foundations and organizational issues"

PARTICIPANTS:

In addition, students regularly go to practice, it is considered an important part of the training of specialists in the field of "Geodesy, cartography and cadastre" and is very beneficial for students.

From April 1-30, 2022

Associate professor of the NUU, completed training courses under the CSSTEAP program at the Indian Institute of Remote Sensing of the Earth.

Press the button to watch the interview

SDG – 16

Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels

11
Number of Publications

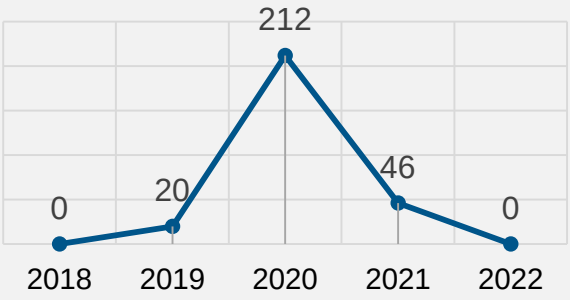
278
Total views

32
Citation

Number of University Publications

2018	2019	2020	2021	2022
0	2	7	1	0

The number of publication views



Most viewed articles

- Features of digital systems in Asean countries, 2020, Khayitov Sh., Muxamedaminov A., Boboev A., Yusubov J., Atadjanova, D.
- Integration of national culture in the process of globalization, 2020, Ergashev I., Farxodjonova N.
- The system of key risk factors contributing to religious terrorist activities in the 21st century, 2021, Zelenkov M., Laamarti Y., Zinkovsky S., Shermukhamedova N., Diaghilev V., Vasilyeva O.

RESEARCH

At the National University of Uzbekistan, articles have been published in scientific journals on the basis of Scopus regarding the promotion of the construction of peaceful and open societies in the interests of sustainable development, the provision of access to justice for all, and the establishment of effective, accountable and participatory institutions at all levels. In particular, the study **"Features of digital systems in Asean countries"** was conducted. In this study, based on the experience of Singapore and Thailand, the specific direction of digital economy development in ASEAN countries is discussed. The purpose of the study is to study the development of the digital economy of individual ASEAN countries. As a result of research, the following conclusions were drawn:

- Existence of corruption in almost all ASEAN countries, except for Singapore and Malaysia, is the biggest obstacle to the development of the digital economy;

- the low level of openness of countries is one of the main problems of developing the digital economy in these countries.

For example, in Myanmar, this indicator is 1%, and in Malaysia, it is 10%; - One of the strategic goals of the ASEAN countries in the recent transition to the digital economy is to ensure cyber security.

In addition, the study "Integration of national culture in the process of globalization" was conducted. In this study, the integration process of national culture is analyzed. Globalization is considered as an objective process. Its positive and negative effects on the development of national culture were studied. However, the general rule is that a nation that manifests its national culture should not lose its uniqueness in reflecting the features of the spiritual heritage of these nations in the national traditions that are characteristic of a particular nation and that correspond to it. On the contrary, development is important to be rich and modern. It serves both national and human development. The process of globalization places new demands on national cultures. For this, it is necessary for national cultures to be able to respond to the changes and innovations taking place in this area, to take care of self-enrichment and even to prevent its negative effects.

The study **"The system of key risk factors contributing to religious terrorist activities in the 21st century"** was conducted. The purpose of the research is to determine the factors in the system of religious terrorism that play a key role in attracting a person to religious terrorist activities in the 21st century, and to classify them according to social and group characteristics. The research methodology consists of a retrospective analysis of the essence and content of religious terrorism, as well as socio-psychological characteristics of militants of religious terrorist organizations. A holistic systemic-integrative approach allows to identify the main factors leading in the process of radicalization of the individual. The main results of the study are to identify the main risk factors that contribute to the radicalization of an individual, to classify them, as well as to create a controlled system that helps to become a member of a religious terrorist organization. The obtained results will greatly help in the organization of anti-terrorist activities. They will also help to create a system for combating existential threats to the person corresponding to religious terrorism.

Social activity

Various conferences, seminars, open dialogues and practical work are held at the National University of Uzbekistan on SDG 16.

In particular, widespread promotion of the ideas of religious openness and inter-ethnic harmony among young people, education of young people in the spirit of secularism and patriotism, cases of unknowingly joining various currents that are encountered among young people today and want to harm the development of our country.

In order to prevent the negative consequences of existing religious extremism and terrorism, to promote mutual trust between religions, mutual respect between people of different religions, equality, peace and harmony An open dialogue was held on the topic of "Enlightenment against ignorance".

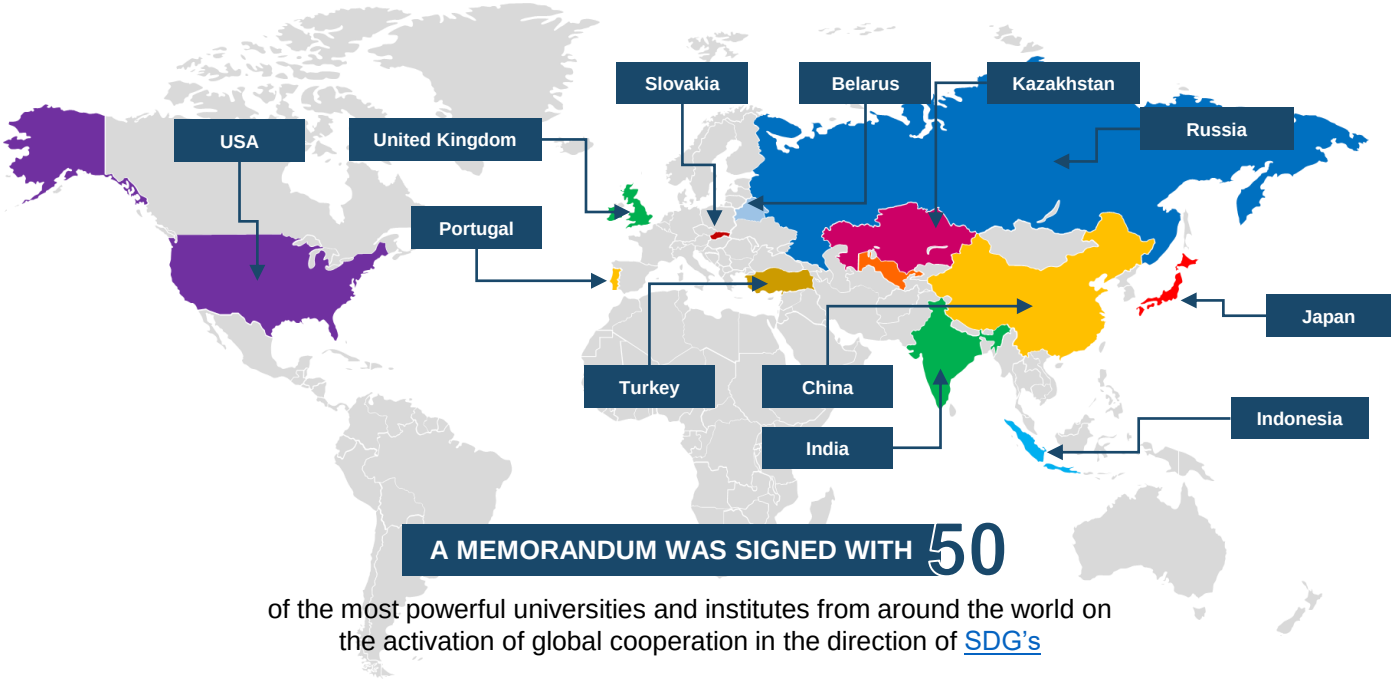
The talented students of the university at the Tashkent International Conference **"Afghanistan: Security and Economic Development"** held on July 25-26, 2022.

Press the button to watch the interview

17 PARTNERSHIPS FOR THE GOALS

SDG – 17

Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels



A MEMORANDUM WAS SIGNED WITH 50

of the most powerful universities and institutes from around the world on the activation of global cooperation in the direction of SDG's

The National University of Uzbekistan has developed a long-term and short-term strategic plan for 2022 to activate global cooperation in the interests of sustainable development, which is the 17th direction of the **Sustainable Development Goals**, and all faculties will work on this throughout the year. Work is being carried out in several directions. In 2022, a memorandum was signed with 50 of the most powerful universities and institutions from around the world to activate global cooperation in the interests of sustainable development. They are mainly Michigan State University in the USA, Kanazawa University in Japan, Norwich Institute for Language Education in the United Kingdom, EPF Ecole d'ingerieurs (Paris-Cachan) in France and Universite de Bordeaux, University of Mons in Belgium, Indian Institute of Technology Rorkee in India.

NUU has a separate structural unit responsible for the development of international cooperation – **THE INTERNATIONAL COOPERATION DEPARTMENT**.

The main objectives of the department are:

- Interaction with foreign universities, embassies, international organizations, associations in order to develop international cooperation, including measures to establish and develop international partnerships, organizational support and monitoring of the implementation of agreements, participation of representatives of NUU in events of partner organizations;
- Interaction with faculties and structural divisions of NUU on the development of international cooperation with foreign partners;
- Information, analytical and organizational support for international activities and institutional participation of NUU in international network organizations, programs and projects in the field of higher education;
- Organization of work of the Council of International Relations of NUU;

Page of the department

PUBLIC ENGAGEMENT PARTNERSHIPS

We partner with a range of organizations to carry out meaningful public engagement with diverse audiences and share ideas and research as well as inspiring informed discussion, debate and creativity.

A.S.I.E. – NUU: UNITY THROUGH QUALITY EDUCATION

On April 2022, the memorandum of cooperation between A.S.I.E (Association de solidarité internationale et d'éducation – International Solidarity and Education Organization) and NUU served as an important step in establishing the exchange of professional experience between the two countries.
Since 2017, with the support of this organization, more than 10 young French people have been able to share their research experience in the fields of ecology, science, arts and crafts in the territory of Uzbekistan.

UNIVERSITY PARTNERSHIPS

Cooperation between NUU and The University Of Terengganu, Malaysia

On January 11, 2022, a memorandum of understanding on cooperation was signed between NUU and the University of Malaysia Terengganu. Now the two universities are cooperating in all directions.

Cooperation between NUU and Puchon University

On May 25, 2022, a delegation led by the rector of Puchon University of the Republic of Korea Han Chyung Such visited NUU. Also, at the end of the meeting, a Memorandum of Understanding was signed between the two universities

Uzbekistan – Turkey: prospects of academic and educational cooperation

On November 10, 2022, a delegation of the Republic of Turkey visited the NUU. At the meeting held in a constructive spirit, proposals were made for establishing cooperation in many areas. Joint supervision and appointment of external experts for master's and doctoral theses, organization of joint seminars, participation of students in summer and winter schools organized by relevant institutions, creation of joint degree programs, between two universities exchange of researchers and similar issues.

VISIT OF AMBASSADORS OF FOREIGN COUNTRIES

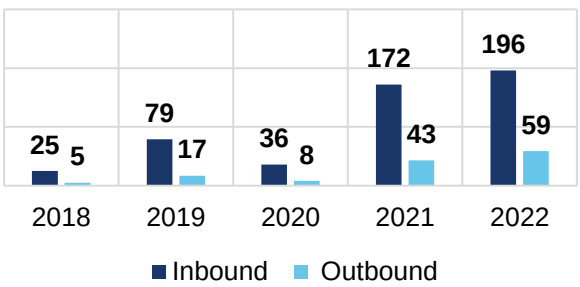
Visit of the ambassador of BANGLADESH

Visit of the ambassador of MALAYSIA

Visit of the ambassador of ITALY

ACADEMIC MOBILITY

Academic mobility is one of the important factors for achieving high performance in the higher education system. It serves to improve the quality of higher education by making it possible to compare educational institutions with each other, mastering and introducing their important aspects. Mobility creates a basis for improving the structures of higher education institutions, state educational standards, and curricula. Academic mobility is well established at the NUU.



ABOUT THIS REPORT

This report summarizes a number of activities undertaken by the National University of Uzbekistan to achieve the Sustainable Development Goals (SDGs). All these activities are interrelated with the main elements of the university's function and include attracting students to the university, establishing cooperation with other universities, conducting research, and teaching.

We have analyzed a number of studies relevant to the SDGs as well as based on a number of qualitative case studies. In 2022, although the impact of COVID-19 has decreased slightly, there is still a negative impact on the academic activities of professors and teachers and the educational process of students. Contribute to the reduction of inequality, poverty and hunger among employees, students and all community members of the National University of Uzbekistan, as well as to solving various social, economic, environmental and health related problems. continued to work for the tumor.

This year's report is a list of activities and initiatives that reflect our ongoing commitment to addressing a variety of global challenges, as well as a number of other activities tailored to current circumstances. We remain committed to the Sustainable Development Goals and believe the underlying principles of the SDGs are more relevant than ever in the current global climate.

SDG Metrics

The report on the work done by the university in 2022 according to the SDG was compiled through a number of analyzes and methods. For example, published research on each SDG was explored and analyzed in Elsevier's 2022 SDG Mapping database.

Also, during the year, the work and activities carried out in the university on the SDGs were summarized and their infographics was created. Through this, the reader will easily and quickly understand what work was done during the year.

In addition to reporting on research publications obtained by Elsevier's 2022 SDG Mapping, reporting on SDG research publications using the National Approach, which reflects the university's efforts to localize SDG mapping, taking into account the context within the research framework of the National University of Uzbekistan, and SDG carries out activities related to Through our method, it is possible to understand scientific terms in the local language.

For example, specific geographical locations or general academic concepts have been replaced by terms used in the local language. This method is based on the SDG mapping collaboration with Elsevier.

2022

SUSTAINABLE DEVELOPMENT GOALS

The report was prepared by employees Department of Strategic Development and International Rankings with the support of the Vice-rector for international relations, as well as the main structural units and academic staff of each faculty

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